FILE NOTATIONS

Entered in N I D File	✓	Checked by Chief	
Entered On S R Sheet	✓	Copy N I D to Field Office	
Location Map Pinned	✓	Approval Letter	✓
Card Indexed	✓	Disapproval Letter	
I W R for State or Fee Land			

COMPLETION DATA:

Date Well Completed	12-8-58	Location Inspected	
OW ✓ WW	TA	Bond released	
GW OS	PA	State of Fee Land	

LOGS FILED

Driller's Log 2-14-59

Electric Logs (No.) 3

E I E-I ✓ GR GR-N Micro ✓

Lat Mi-L Sonic Others Radioactivity

Form 9-331 b
(April 1952)

Budget Bureau No. 42-R359.4.
Approval expires 12-31-60.

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Indian Agency Navajo

Allottee Tribal

Lease No. 14-20-603-355

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL	X	SUBSEQUENT REPORT OF WATER SHUT-OFF	
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Cortez, Colorado October 22, 1958

Navajo "A"
Well No. 9 is located 1980 ft. from {S} line and 1980 ft. from {W} line of sec. 16

NE SW Sec. 16 (¼ Sec. and Sec. No.) | 41S (Twp.) | 24E (Range) | S.L.M. (Meridian)

White Mesa (Field) | San Juan County (County or Subdivision) | Utah (State or Territory)

The elevation of the Ungraded Ground above sea level is 4693.8 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Drill 17-1/2" hole to approximately 160', set 160' of 13-3/8" conductor pipe and cement to surface. Drill 11" hole to approximately 1600', set 8-5/8" casing and cement to surface. Drill 7-7/8" hole to total depth of approximately 5800' and run 5-1/2" casing and cement with approximately 250 sx. cement. Complete in Paradox formation.

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced.

Company Phillips Petroleum Company

Address Box 548

Cortez, Colorado

By C. M. Boles
C. M. Boles

Title Dist. Supt.

U. S. GOVERNMENT PRINTING OFFICE 16—8437b-8

Company PHILLIPS PETROLEUM COMPANY

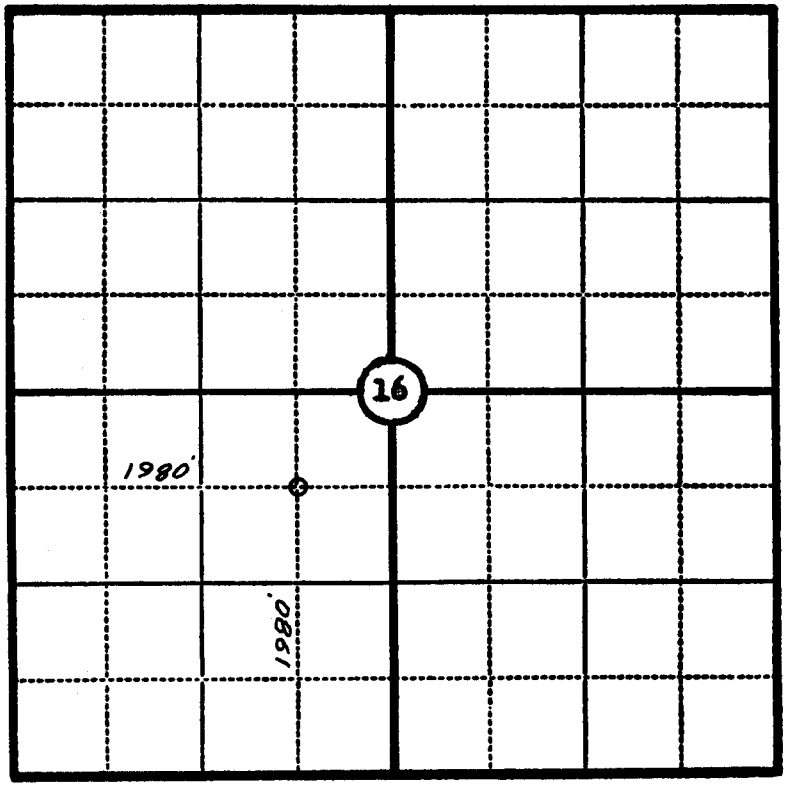
Lease NAVAJO "A" Well No. 9

Sec. 16, T. 41 S., R. 24 E., S.L.M.

Location 1980' FROM THE SOUTH LINE AND 1980' FROM THE WEST LINE.

Elevation 4693.8 UNGRADED GROUND.

SAN JUAN COUNTY UTAH



Scale—4 inches equal 1 mile.

This is to certify that the above plat was prepared from field notes of actual surveys made by me or under my supervision and that the same are true and correct to the best of my knowledge and belief.

James P. Lease

Seal:

Registered Land Surveyor.
James P. Lease
Utah Reg. No. 1472

Surveyed 19 December, 19 57

SAN JUAN ENGINEERING COMPANY, FARMINGTON, N. M.

October 25, 1958

Phillips Petroleum Company
P. O. Box 548
Cortez, Colorado

Attention: C. M. Boles, District Superintendent

Gentlemen:

This is to acknowledge receipt of your notice of intention to drill Well No. Navajo A - 9, which is to be located 1980 feet from the south line and 1980 feet from the west line of Section 16, Township 41 South, Range 24 East, SLBM, San Juan County, Utah.

Please be advised that insofar as this office is concerned, approval to drill said well is hereby granted.

This approval terminates within 90 days if the above mentioned well is not spudded in within said period.

Yours very truly,

OIL & GAS CONSERVATION COMMISSION

CLEON B. FEIGHT
SECRETARY

CBF:co

cc: Phil McGrath
USGS, Farmington,
New Mexico

Form 9-331 b
(April 1952)

Budget Bureau No. 42-R-359.2.
Approval expires 12-31-55.

(SUBMIT IN TRIPLICATE)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PAPT 16W23
43 037 15722

Indian Agency _____

Allottee Tribal

Lease No. 14-20-603-355

SUNDRY NOTICES AND REPORTS ON WELLS

NOTICE OF INTENTION TO DRILL		SUBSEQUENT REPORT OF WATER SHUT-OFF	X
NOTICE OF INTENTION TO CHANGE PLANS		SUBSEQUENT REPORT OF SHOOTING OR ACIDIZING	
NOTICE OF INTENTION TO TEST WATER SHUT-OFF		SUBSEQUENT REPORT OF ALTERING CASING	
NOTICE OF INTENTION TO REDRILL OR REPAIR WELL		SUBSEQUENT REPORT OF REDRILLING OR REPAIR	
NOTICE OF INTENTION TO SHOOT OR ACIDIZE		SUBSEQUENT REPORT OF ABANDONMENT	
NOTICE OF INTENTION TO PULL OR ALTER CASING		SUPPLEMENTARY WELL HISTORY	
NOTICE OF INTENTION TO ABANDON WELL			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Navajo "A"

Cortez, Colorado December 15, 1958

Well No. 9 is located 1980 ft. from {N/S} line and 1980 ft. from {E/W} line of sec. 16

NE SW Sec. 16 (¼ Sec. and Sec. No.) 41S (Twp.) 24E (Range) S.L.M. (Meridian)

White Mesa (Field) San Juan County (County or Subdivision) Utah (State or Territory)

The elevation of the ~~derrick floor~~ ungraded ground above sea level is 4693.8 ft.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work)

Spudded 1 AM 11/14/58. Drilled 11" hole to 174'. Reamed to 17-1/4" hole to 174'. Set and cemented 13-3/8"OD 27.1# casing at 173.46 RKB w/175 sx regular cement, 2% calcium chloride. Pumped plug to 143' at 7:30 PM 11/14/58. Cement circulated. WOC 24 hrs. Tested casing with 250# for 30 mins - o.k.

Drilled 11" hole to 1499'. Set and cemented 8-5/8" OD 24# casing at 1498.74' /RKB w/800 cu.ft. 20% Diacel "D", 2% calcium chloride, 1/2#/sack Floccle, 2#/sack tuff plug, followed w/ 125 sx cement on bottom. Pumped plug to 1468' at 7:50PM 11/16/58. Cement circulated. WOC 24 hrs. Tested casing w/750# for 30 mins.o.k.

Drilled 7-7/8" hole to 5742'. Reached TD at 5:45 PM 12/2/58. Ran Schlumberger Induction and Micro Caliper logs to 5742'. Set and cemented 5-1/2" OD 14# casing at 5729.66'RKB w/132 sx neat reg. cement, 100 sx Diacel "D", 496# calcium chloride. Pumped plug to

I understand that this plan of work must receive approval in writing by the Geological Survey before operations may be commenced. (cont'd on back)

Company Phillips Petroleum Company

Address Box 548

Cortez, Colorado

By C. M. Boles

Title District Superintendent

U. S. GOVERNMENT PRINTING OFFICE 16—8437b-7

5699' at 1:30 PM 12/3/58. WOC 24 hrs. Tested casing w/750# for 30 mins. o.k.

DOWNHOLE SCHEMATIC

Date: 8/6/87

RATHERFORD Unit # 16W23

RKB Elev. 4705'

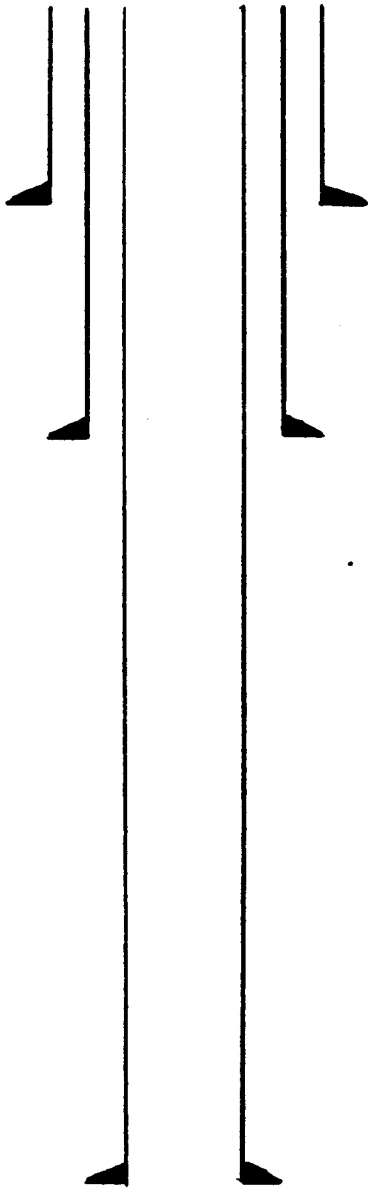
GL Elev. 4693'

RKB Above GL' 12'

Location NE SW sec. 16
T41S-R24E

Well Drld 12/2/58

Well Converted to injector 8/30/69



CONDUCTOR Csg 13⅜ @ 173'

SURFACE CSG. 8⅝ @ 1,499'

TOC 3742' CALC

Tubing 2⅞ @ 5430'

PACKER Otis Inter-lock PKR.
Nickel Coated @5430'

PERFS
5520 - 40
5561 - 92
5598 - 5611
____ - ____

PBTD 5,620'

PRODUCTION Csg. 5½ @ 5740'
J-55, 14#

All Perfs Zone I Unless noted

PHILLIPS PETROLEUM COMPANY

P. O. Box 548
Cortez, Colorado
December 30, 1958

In re: Confidential Wells

Oil & Gas Conservation Commission
State of Utah
Room 310 Newhouse Building
Salt Lake City, Utah

Attention: Mr. Cleon B. Feight

Dear Sir:

We would appreciate any information furnished you regarding the following wells kept confidential and restricted from public release.

Navajo "A" No. 9 - NE, SW Sec 16-41S-24E
San Juan County, Utah

Navajo "A" No. 12 - NE NW, Sec 16-41S-24E
San Juan County, Utah

Thanking you for your cooperation in this matter, I remain

Very truly yours,

C. M. Boles

C. M. Boles

HGC:bh
cc: U. S. Geological Survey
Attn: Mr. P. T. McGrath
Farmington, New Mexico

January 5, 1959

Phillips Petroleum Company
P. O. Box 548
Cortez, Colorado

Attention: C. M. Boles, District Superintendent

Re: Confidential Wells

Gentlemen:

As per your letter of December 30, 1958, please be advised that Wells No. Navajo A-9 and A-12, located in Section 16, Township 41 South, Range 24 East, SLBM, San Juan County, Utah, have been placed in our Confidential File.

It is requested that the following procedure be followed when forwarding any information pertaining to the above mentioned wells to this office:

1. Seal the information that is to be kept Confidential within an envelope and mark "Confidential" on the face side.

2. List the reports that are contained therein under the words "Confidential".

3. Place the information enclosed within the envelope in the transmittal envelope addressed to this office.

4. Mark on the outside of the transmittal envelope that the information contained inside is Confidential.

Your cooperation in this matter will be appreciated.

Yours very truly,

OIL & GAS CONSERVATION COMMISSION

CLEON B. FEIGHT
EXECUTIVE SECRETARY

CBF:co

Form 9-330

10-25-58

Budget Bureau No. 42-R355.4.
Approval expires 12-31-60.

U. S. LAND OFFICE Navajo
SERIAL NUMBER 14-20-603-355
LEASE OR PERMIT TO PROSPECT Tribal

LOCATE WELL CORRECTLY

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LOG OF OIL OR GAS WELL

Company Phillips Petroleum Company Address Box 548, Cortez, Colorado

Lessor or Tract Navajo "A" Field White Mesa State Utah

Well No. 5 Sec. 16 T. 41S R. 24E Meridian SLM County San Juan

Location 1980 ft. {N. / S.} of S Line and 1980 ft. {E. / W.} of W Line of Sec. 16 Elevation 4705
(Derrick floor relative to sea level)

The information given herewith is a complete and correct record of the well and all work done thereon so far as can be determined from all available records.

Signed [signature]

Date February 17, 1959 Title District Superintendent

The summary on this page is for the condition of the well at above date.

Commenced drilling November 14, 19 58 Finished drilling December 2, 19 58

OIL OR GAS SANDS OR ZONES

(Denote gas by G)

No. 1, from ____ to ____ No. 4, from ____ to ____

No. 2, from ____ to ____ No. 5, from ____ to ____

No. 3, from ____ to ____ No. 6, from ____ to ____

IMPORTANT WATER SANDS

Water flow recorded in Navajo and Kayenta formations of Jurassic age

No. 1, from ____ to ____ No. 3, from ____ to ____

No. 2, from ____ to ____ No. 4, from ____ to ____

CASING RECORD

Size casing	Weight per foot	Threads per inch	Make	Amount	Kind of shoe	Cut and pulled from	Perforated From—	Perforated To—	Purpose
13-3/8	27.1#	SWJ	Armco	162	Baker		5520	5540	Oil Prod
8-5/8	24#	8 rd	J-55	2436	Baker		5261	5282	Oil Prod
5-1/2	14#	8 rd	J-55	5759	Baker		5596	5611	" "
							5629	5634	" "

MUDDING AND CEMENTING RECORD

Size casing	Where set	Number sacks of cement	Method used	Mud gravity	Amount of mud used
13-3/8	153	175	Circ		
8-5/8	1499	800 cu ft	Circ (90 sx additional down annulus)		
5-1/2	5740	550 cu ft	Halliburton		

PLUGS AND ADAPTERS

Heaving plug—Material ____ Length ____ Depth set ____

Adapters—Material ____ Size ____

SHOOTING RECORD

FOLD MARK

13-3/8	173	175	Circ		
8-5/8	1499	800 cu ft	Circ (90 sx accitional down annulus)		
5-1/2	5740	550 cu ft	Halliburton		

FOLD | MARK

PLUGS AND ADAPTERS

Heaving plug—Material ..... Length ..... Depth set .....

Adapters—Material ..... Size .....

SHOOTING RECORD

Size	Shell used	Explosive used	Quantity	Date	Depth shot	Depth cleaned out

TOOLS USED

Rotary tools were used from 0 feet to 5742 feet, and from ..... feet to ..... feet

Cable tools were used from ---- feet to ---- feet, and from ..... feet to ..... feet

DATES

February 17, 19 59 Put to producing December 8, 19 58

The production for the first 24 hours was 1572 barrels of fluid of which 100 % was oil; ..... % emulsion; ..... % water; and ..... % sediment.

Gravity, °Bé. .....

If gas well, cu. ft. per 24 hours ..... Gallons gasoline per 1,000 cu. ft. of gas .....

Rock pressure, lbs. per sq. in. 255 #

EMPLOYEES

Moran Bros., Inc., Driller ....., Driller

....., Driller ....., Driller

FORMATION RECORD

FROM—	TO—	TOTAL FEET	FORMATION
1480	2340	860	Chinle
2340	2396	56	Shinarump
2396	2543	147	Moenkopi
2543	2618	75	Cutler - Hoskinini Member
2618	2785	167	Cutler - De Chelly Member
2785	3975	190	Cutler - Organ Rock
3975	4553	578	Cutler - Lower Cutler
4553	5371	818	Honaker Trail
5371	5742	371	Paradox
5742	5708	-34	PBTD - Top cement plug

16—43094-2 U. S. GOVERNMENT PRINTING OFFICE

HISTORY OF OIL OR GAS WELL

It is of the greatest importance to have a complete history of the well. Please state in detail the dates of redrilling, together with the reasons for the work and its results. If there were any changes made in the casing, state fully, and if any casing was "sidetracked" or left in the well, give its size and location. If the well has been dynamited, give date, size, position, and number of shots. If plugs or bridges were put in to test for water, state kind of material used, position, and results of pumping or bailing.

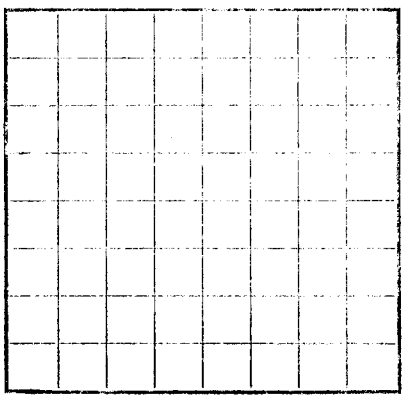
Spudded 1 AM 11/14/58. Drilled 11" hole to 174'. Reamed to 17-1/4" hole to 174'. Set and cemented 13-3/8" OD 27.1# casing at 173.46' RKB w/175 sacks regular cement, 2% calcium chloride. Pumped plug to 143' at 7:30 PM 11/14/58. Cement circulated. WOC 24 hours. Tested casing with 250# for 30 minutes - o.k.

Drilled 11" hole to 1499'. Set and cemented 8-5/8" OD 24# casing at 1493.74' RKB w/300 cu. ft. 20% Diacel "D", 2% calcium chloride, 1/2#/sack floccle, 2#/sack tuff plug, followed w/125 sacks cement on bottom. Pumped plug to 1468' at 7:50 PM 11/16/58. Cement circulated. WOC 24 hours. Tested casing with 750# for 30 minutes - o.k.

Drilled 7-7/8" hole to 5742'. Reached TD at 5:45 PM 12/2/58. Ran Schlumberger Induction Electric and Micro Caliper logs to 5742'. Set and cemented 5-1/2" OD 14# casing at 5739.66' RKB with 132 sacks neat regular cement, 100 sacks Diacel "D", 496# calcium chloride. Pumped plug to 5699' at 1:30 PM 12/3/58. WOC 24 hours. Tested casing with 750# for 30 minutes - tested okay.

Ran tubing and checked PBTD on top cement at 5708'. Ran Welex Gamma Ray Neutron Collar locator log to 5708'. Perforated 5-1/2" casing with 4 Welex Star jets per foot from 5520-40, 5561-92, 5598-5611, 5629-34 - total 69', 276 holes ft and RL measure. Ran 2-7/8" OD EUE Tubing and set at 5662.20' with Packer at 5465.05'. Dowell displaced water with 95 barrels oil, set Packer and acidized casing perforations with 7000 gallons Dowell regular 15% acid. Flushed with 35 BO. Maximum pressure: 3250#, minimum pressure 2000#. Average treating rate: 8.4 BPM Average flush rate: 7BPM. Pressure bled to zero at once after pumps shut down.

LOCATE WELL CORRECTLY



FORM 9-330

LOG OF OIL OR GAS WELL

GEOLOGICAL SURVEY

DEPARTMENT OF THE INTERIOR

UNITED STATES

Budget Bureau No. 42-R355.4
Approval expires 12-31-60.

U. S. LAND OFFICE

SERIAL NUMBER

LEASE OR PERMIT TO PROSPECT

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL [X] GAS WELL [ ] OTHER

2. NAME OF OPERATOR
Phillips Petroleum Company

3. ADDRESS OF OPERATOR
P. O. Drawer 1150, Cortez, Colorado 81321

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.)
At surface
1980' FSL and 1980' FWL, Section 16 - NE SW

5. LEASE DESIGNATION AND SERIAL NO.
14-20-603-355

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
Navajo

7. UNIT AGREEMENT NAME
SW-I-4192

8. FARM OR LEASE NAME
Ratherford Unit

9. WELL NO.
16-23

10. FIELD AND POOL, OR WILDCAT
Greater Aneth

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
16-41S-24E SLM

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)
4706.5 RKB

12. COUNTY OR PARISH
San Juan

13. STATE
Utah

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	[ ]	PULL OR ALTER CASING	[ ]	WATER SHUT-OFF	[ ]	REPAIRING WELL	[ ]
FRACTURE TREAT	[ ]	MULTIPLE COMPLETE	[ ]	FRACTURE TREATMENT	[ ]	ALTERING CASING	[ ]
SHOOT OR ACIDIZE	[ ]	ABANDON*	[ ]	SHOOTING OR ACIDIZING	[ ]	ABANDONMENT*	[ ]
REPAIR WELL	[ ]	CHANGE PLANS	[ ]				
(Other) Convert to Water Injection			[X]	(Other)			[ ]

(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.) *

Pull pumping equipment, set injection packer at 5475', connect for injection, acidize with 2500 gallons 15% acid. Convert to water injection well with Desert Creek Zone I perforations 5520-40, 5561-92, 5598-5611 and Zone II perforations 5629-34' open to injection.

Present production: 6/12/69: 11 BOPD, 9 MCFGPD, 8 BWPD.

NOTE: This proposed work is in accordance with Plan of Development of Ratherford Unit as approved by USGS letter of May 29, 1969.

APPROVED BY DIVISION OF
OIL & GAS CONSERVATION

DATE 7-18-69

BY Paul W. Burchell

18. I hereby certify that the foregoing is true and correct

SIGNED C. M. Boles TITLE District Superintendent DATE 7-14-69

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

Orig. & 2 cc: USGS, Farmington, NM
2 cc: Utah O&GCC, Salt Lake C
1 cc: Denver
1 cc: File

*See Instructions on Reverse Side

PHILLIPS PETROLEUM COMPANY

P. O. Drawer 1150
Cortez, Colorado 81321

September 10, 1969

State of Utah
Oil & Gas Conservation Commission
1588 West North Temple
Salt Lake City, Utah 84116

Attention: Mr. Cleon B. Feight

Dear Sirs:

In accordance with Rule E-4 of the Utah General Rules and Regulations, we wish to advise that the following wells located on the Ratherford Unit in San Juan County, Utah, were converted to water injection wells.

Old Well No.	New Well No.	Date Converted	Injection Rate	Injection Pressure
7-41	7W41	8-30-69	1674 BWPD	300#
16-23	16W23	8-30-69	3093 BWPD	Vacuum

Details of the above conversions will be furnished on USGS Form No. 9-331b in the near future.

Very truly yours,

PHILLIPS PETROLEUM COMPANY

C. M. Boles
District Superintendent

bh

PI

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

5. LEASE DESIGNATION AND SERIAL NO.: 14-20-603-355

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Navajo

1. OIL WELL ☐ GAS WELL ☐ OTHER: Water Injection Well

7. UNIT AGREEMENT NAME: Sw-I-4192

2. NAME OF OPERATOR: Phillips Petroleum Company

8. FARM OR LEASE NAME: Ratherford Unit

3. ADDRESS OF OPERATOR: Drawer 1150, Cortez, Colorado 81321

9. WELL NO.: 16W23

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: 1980' FSL and 1980' FWL, Section 16 - NE, SW

10. FIELD AND POOL, OR WILDCAT: Greater Aneth

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: 16-41S-24E SLM

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 4706.5 RKB

12. COUNTY OR PARISH: San Juan

13. STATE: Utah

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☐	ABANDON*	☐	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	☐
REPAIR WELL	☐	CHANGE PLANS	☐	(Other) Convert to water injection			X
(Other)			☐	(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.) *

Pulled rods, tubing and packer. Ran wireline, tagged bottom at 5700', reran 2½" tubing with injection packer, hooked up for water injection, started injecting water at 2:00 P.M. 8-30-69. WELL CONVERTED FROM OIL WELL TO WATER INJECTION WELL AND WELL NUMBER CHANGED FROM 16-23 TO 16W23 EFFECTIVE 8-30-69.

Previous Production from Greater Aneth Field, Paradox Formation, Desert Creek Zone I: 15 BOPD, 4 MCFGPD, 9 BWPD.

Present Injection Rate: (Desert Creek Zone I & II) 3093 BWPD on vacuum.

18. I hereby certify that the foregoing is true and correct

SIGNED C. M. Boles TITLE District Superintendent DATE 10-9-69

C. M. Boles

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

Orig. & 2 cc: USGS, Farmington, NM
2 cc: Utah O&GCC, Salt Lake City, Utah
1 cc: Denver
1 cc: File
1 cc: Superior Oil Co., Cortez, Colo

*See Instructions on Reverse Side

PI

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL ☐ GAS WELL ☒ OTHER Water Injection Well

2. NAME OF OPERATOR: Phillips Petroleum Company

3. ADDRESS OF OPERATOR: P O Box 2920 Casper, Wyoming 82601

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: 1900' FSL and 1980' FWL Sec. 16, NE SW

5. LEASE DESIGNATION AND SERIAL NO.: 14-20-603-355

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Navajo

7. UNIT AGREEMENT NAME: SW-I-4192

8. FARM OR LEASE NAME: Ratherford Unit

9. WELL NO.: 16W23

10. FIELD AND POOL, OR WILDCAT: Greater Aneth

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: 16-41S-24E SLBM

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 4706.5 RKB

12. COUNTY OR PARISH: San Juan

13. STATE: Utah

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☒	ABANDON*	☐	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	☐
XXXXX REPAIR WELL		CHANGE PLANS	☐	(Other)			
(Other)				(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.) *

Acidize with 2500 gals. 15% HCL

Present Injection Rate: 665 BWPD at 1555#

18. I hereby certify that the foregoing is true and correct

SIGNED Original Signed By: J. P. DENNY TITLE Prod. Superintendent DATE Feb. 19, 1971

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Form 9-331
(May 1963)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL ☐ GAS WELL ☒ OTHER Water Injection Well

2. NAME OF OPERATOR
Phillips Petroleum Company

3. ADDRESS OF OPERATOR
Box 2920 Casper, Wyoming 82601

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.)
At surface
1900' FSL and 1980' FWL Sec. 16 NE SW

5. LEASE DESIGNATION AND SERIAL NO.
14-20-603-355

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
Navajo

7. UNIT AGREEMENT NAME
SW01-4192

8. FARM OR LEASE NAME
Rutherford Unit

9. WELL NO.
16-23

10. FIELD AND POOL, OR WILDCAT
Greater Aneth

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
16-41S-24E SLBM

12. COUNTY OR PARISH
San Juan

13. STATE
Utah

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)
4706.5 RKB

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☐	ABANDON*	☐	SHOOTING OR ACIDIZING XXXX X	☒	ABANDONMENT*	☐
REPAIR WELL	☐	CHANGE PLANS	☐	(Other)			
(Other)				(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.) *

Dowell acidized with 2500 gals. 15% regular acid March 3, 1971

Injection Rate Before: 665 BWPD at 1555#
Injection Rate After: 3276 BWPD at 325#

18. I hereby certify that the foregoing is true and correct
Original Signed By:
J. P. DENNY

SIGNED J. P. DENNY TITLE Prod. Superintendent DATE March 10, 1971

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Form 9-331
(May 1963)

U ED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1424.

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL ☐ GAS WELL ☒ OTHER Water Injection Well

2. NAME OF OPERATOR
Phillips Petroleum Company

3. ADDRESS OF OPERATOR
P. O. Box 2920 Casper, Wyoming 82601

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.)
At surface
1900' FSL and 1980' FWL Sec. 16 NE SW

5. LEASE DESIGNATION AND SERIAL NO.
14-20-603-355

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
Navajo

7. UNIT AGREEMENT NAME
SW-I-4192

8. FARM OR LEASE NAME
Ratherford Unit

9. WELL NO.
16W23

10. FIELD AND POOL, OR WILDCAT
Greater Aneth

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
16-41S-24E SLBM

12. COUNTY OR PARISH
San Juan

13. STATE
Utah

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)
4706.5 RKB

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☐	ABANDON*	☐	ACIDIZING	☒	ABANDONMENT*	☐
REPAIR WELL	☐	CHANGE PLANS	☐	(Other)			
(Other)				(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.) *

Dowell acidized w/1500 Gal 15% HCl May 7, 1974

Injection Rate Before 375 BWPD at 1500 PSI
Injection Rate After 3136 BWPD at 900 PSI

18. I hereby certify that the foregoing is true and correct

SIGNED Original Signed By: F. C. MORGAN TITLE ~~Production Superintendent~~ DATE ~~May 23, 1974~~
F. C. Morgan

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

3-USGS - Farmington, NM
2-Utah O&G CC Salt Lake City
1-Denver
1-Superior - Cortez
1-File

*See Instructions on Reverse Side

STATE OF UTAH
DIVISION OF OIL, GAS, AND MINING
ROOM 4241 STATE OFFICE BUILDING
SALT LAKE CITY, UTAH 84114
(801) 533-5771
(RULE I-5 & RULE I-4)

FORM NO. DOGM-UIC-1
(Revised 1982)

IN THE MATTER OF THE APPLICATION OF
PHILLIPS PETROLEUM COMPANY
ADDRESS P.O. BOX 2920
CASPER, WYOMING ZIP 82602
INDIVIDUAL ___ PARTNERSHIP X CORPORATION ___
FOR ADMINISTRATIVE APPROVAL TO DISPOSE OR
INJECT FLUID INTO THE 16W23 WELL
SEC. 16 TWP. 41S RANGE 24 E
SAN JUAN COUNTY, UTAH

CAUSE NO. C-3(B)

ENHANCED RECOVERY INJ. WELL	☒
DISPOSAL WELL	☐
LP GAS STORAGE	☐
EXISTING WELL (RULE I-4)	☒

APPLICATION

Comes now the applicant and shows the Corporation Commission the following:
1. That Rule I-5 (g) (iv) authorizes administrative approval of enhanced rcovery injections, disposal or LP Gas storage operations.
2. That the applicant submits the following information.

Lease Name: Ratherford Unit	Well No.: 16W23	Field: Greater Aneth	County: San Juan
Location of Enhanced Recovery Injection or Disposal Well: 16W23	Sec.: 16	Twp.: 41S	Rge.: 24E
New Well To Be Drilled Yes ☐ No ☒	Old Well To Be Converted Yes ☐ No ☒	Casing Test Yes ☒ No ☐ Date: 5-83	
Depth-Base Lowest Known Fresh Water Within ½ Mile: Wingate 1550'	Does Injection Zone Contain Oil-Gas-Fresh Water Within ½ Mile YES ☒ NO ☐	State What: Oil & Gas	
Location of Injection Source(s): Desert Creek Paradox I & II, San Juan River	Geologic Name(s) and Depth of Source(s): Desert Creek (5567'), San Juan River (Surface)		
Geologic Name of Injection Zone: Desert Creek I & II	Depth of Injection Interval: 5520 to 5634		
a. Top of the Perforated Interval: 5520	b. Base of Fresh Water: 1550'	c. Intervening Thickness (a minus b): 3970	
Is the intervening thickness sufficient to show fresh water will be protected without additional data? YES NO	See Attachment #4		
Lithology of Intervening Zones: See Attachment #1			
Injection Rates and Pressures: Maximum 234 (12-82) B/D; 1800 PSI			

The Names and Addresses of Those to Whom Notice of Application Should be Sent.

Navajo Tribe, Minerals Dept., P.O. Box 146, Window Rock, AZ 86515
Superior Oil, P.O. Box 4530, The Woodlands, TX 77380
Texaco Inc., P.O. Box 2100, Denver, CO 80201
Southland Royalty, 1000 Fort Worth Club Tower, Fort Worth, TX 76102

State of Wyoming)
County of Natrona)

PHILLIPS PETROLEUM COMPANY
Applicant

Before me, the undersigned authority, on this day personally appeared A. E. Stuart known to me to be the person whose name is subscribed to the above instrument, who being by me duly sworn on oath states, that he is duly authorized to make the above report and that he has knowledge of the facts stated therein, and that said report is true and correct.

Suscribed and sworn to before me this 21st day of Sept, 19 83

SEAL

DONALD L. HUDSON - Notary Public
County of Natrona
State of Wyoming
My Commission Expires Nov. 3, 1986

Donald L. Hudson

My commission expires Nov. 3, 1986 Notary Public in and for Natrona Co., Wyoming

(OVER)

FORM DOGM-UIC-1 (continued) INSTRUCTIONS

1. Attach qualitative and quantitative analysis of representative sample of water to be injected and a qualitative and quantitive analysis of the injection formation of water.

2. Attach plat showing subject well and all known oil and gas wells, abandoned, drilling and dry holes within one-half mile, together and with the name of the operator(s).

3. Attach Drillers Log (Form DOGM-UIC-2). (Appropriate Surety must be on file with Conservation Division or appropriate government agencies.)

4. Attach Electric or Radioactivity Log of Subject well (if released).

5. Attach schematic drawing of subsurface facilities including; Size, setting depth, amount of cement used measured or calculated tops of cement surface, intermediate (if any) and production casings; size and setting depth of tubing; type and setting depth of packer; geologic name of injection zone showing top and bottom of injection interval.

6. If the application is for a NEW well the original and six (6) copies of the application and three (3) complete sets of attachments shall be mailed to the Division. For EXISTING well applications (Rule I-4) only ONE copy of the application and ONE complete set of attachments are required to be mailed to the Division.

7. The Division is required to send notice of application to he surface owner of the land within one-half mile of the injection well and to each operator of a producing leasehole within one-half mile of the injection well. List all required names and addresses in the appropriate space provided on the front of this form.

8. Notice that an application has been filed shall be published by the Division in a newspaper of general circulation in the county of publication before the application is approved. The notice shall include the name and address of applicant, location of proposed injection or disposal well, injection zone, injection pressure and volume. If no written objection is received within 15 days from date of publication the application may be approved administratively.

9. A well shall not be used for injection or disposal unless completed machine accounting Form DOGM-UIC-3b is filed by January 31st each year.

10. Approval of this application, if granted, is valid only as long as there is no substantial change in the operations set forth in the application. A substantial operation change requires the approval of a new application.

11. If there is less intervening thickness required by Rule I-5 (b) 4, attach sworn evidence and data.

12. For enhanced recovery projects, information required by Rule I-4 which is common to more than one well, need be reported only once on the application.

CASING AND TUBING DATA

NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
Surface	13-3/8	173.45	175	Surface	Returns
Intermediate	8-5/8	1498.74	800 cu ft	surface	Returns
Production	5-1/2	5729.66	550 cu ft.	4337	CALCULATED
Tubing	2-3/8	5460	Name - Type - Depth of Tubing Packer: Baker C-2 loc set Pkr. 5448.88		

PB Total Depth	Geologic Name - Inj. Zone	Depth - Top of Inj. Interval	Depth - Base of Inj. Interval
5708	Desert Creek I & II	5520	5634

FORM DOGM-UIC-2
(Rule I-5 (b) 2
(Revised 1982)

PLEASE TYPE OR USE BLACK INK ONLY

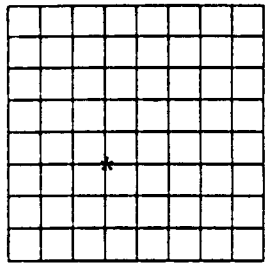
(To be filed within 30 days after drilling is completed)

14-20-603-355
LEASE NO.

DEPARTMENT OF NATURAL RESOURCES AND ENERGY
DIVISION OF OIL, GAS, AND MINING
Room 4241 State Office Building
Salt Lake City, Utah 84114

API NO. 43-037-15722

640 Acres
N



W E

S
Locate Well Correctly and Outline Lease

COUNTY San Juan SEC. 16 TWP. 41S RGE. 24E
COMPANY OPERATING Phillips Petroleum Company
OFFICE ADDRESS P.O. Box 2920
TOWN Casper STATE ZIP Wyoming 82602
FARM NAME -- WELL NO. 16W23
DRILLING STARTED 11-14 19 58 DRILLING FINISHED 12-4 19 58
DATE OF FIRST PRODUCTION 12-8-58 COMPLETED 12-7-58
WELL LOCATED NE ¼ SW ¼ ¼
1980 FT. FROM SL OF ¼ SEC. & 1980 FT. FROM WL OF ¼ SEC.
RKB ELEVATION ~~DERRICK FLOOR~~ 4706.5 GROUND 4693.8

TYPE COMPLETION
Single Zone
Multiple Zone x
Comingled

LOCATION EXCEPTION

OIL OR GAS ZONES

Name	From	To	Name	From	To
Desert Creek I	5520	5611			
Desert Creek II	5629	5634			

CASING & CEMENT

Casing Set				Csg. Test	Cement		
Size	Wgt.	Grade	Feet	Psi	Sax	Fillup	Top
13-3/8	27.1	H-40	159	250	175		surface
8-5/8	24	J-55	1497	750	800 cu ft.		surface
5-1/2	14	J-55	5755	750	550 cu ft.	1417	4337

PBTD 5708
TOTAL DEPTH 5740
PACKERS SET DEPTH Baker Model A Pkr @ 5470

NOTE THIS FORM MUST ALSO BE ATTACHED WHEN FILING PLUGGING FORM DOGM-UIC-6

COMPLETION & TEST DATA BY PRODUCING FORMATION

	1	2	3
FORMATION	Desert Creek I+II		
SPACING & SPACING ORDER NO.	40 acre Cause #C-3(B)		
CLASSIFICATION (DISPOSAL WELL, ENHANCED RECOVERY, LP GAS STORAGE)	Enhanced Recovery		
PERFORATED	5520-5540		
	5561-5592		
INTERVALS	5598-5611		
	5629-5634		
ACIDIZED?	5-9-74 1500 gal		
	15% Acid		
FRACTURE TREATED?	No		

INITIAL TEST DATA Converted to Injector 8-30-69

Date	9-4-69		
Oil, bbl./day	--		
Oil Gravity	--		
Gas, Cu. Ft./day	-- CF	CF	CF
Gas-Oil Ratio Cu. Ft./Bbl.	--		
Water-Bbl./day	3093		
Pumping or Flowing	flowing		
CHOKE SIZE	----		
FLOW TUBING PRESSURE	vacuum		

A record of the formations drilled through, and pertinent remarks are presented on the reverse. (use reverse side)

I, the undersigned, being first duly sworn upon oath, state that this well record is true, correct and complete according to the records of this office and to the best of my knowledge and belief.

Telephone 307-237-3791 A.E. Stuart, Area Manager
Name and title of representative of company

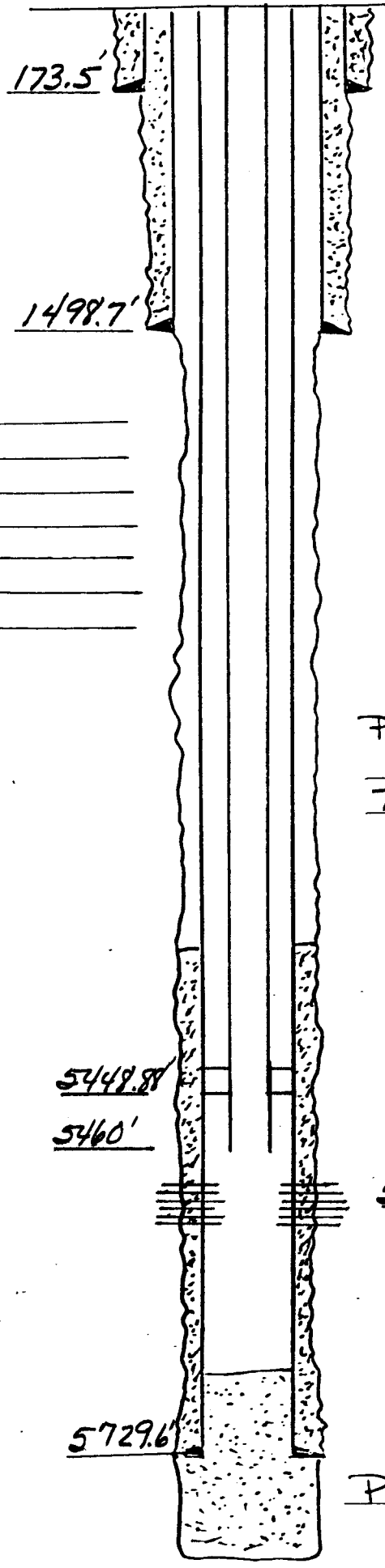
Subscribed and sworn before me this _____ day of SEP 22 '83 19 83

Casper

WELL: 16W23
LOCATION: NESW Sec 16- T41S- R24E
FIELD: GREATER ANETH
RESERVOIR: Desert Creek I+II

COMPLETION: 8.30.69
PRESENT STATUS: W.I.

RKB 4706.5'
GL 4693.8'



SURFACE CASING: 13 3/8" 27.1# H-40

INTERMEDIATE CASING: 8 5/8" 24# J-55

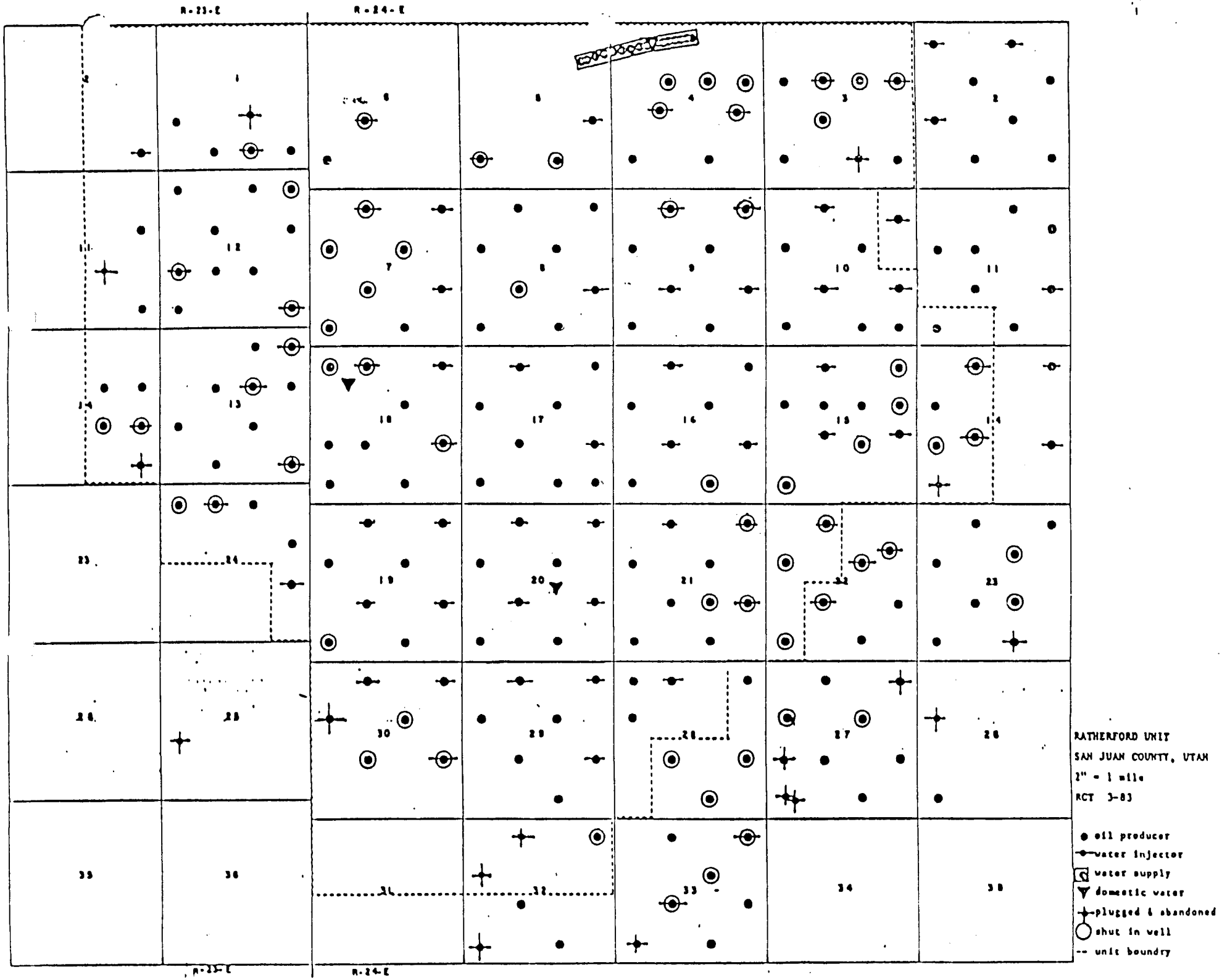
PRODUCTION CASING: 5 1/2" 14# J-55

PERFORATIONS:
5520-40
5561-92
5598-5611
5629-34

PACKER: Baker C-2 Loc-set Pkr @ 5448.88'
Tubing: 2 3/8" @ 5460'

PBTD: 5708'
OTD: 5729'

Phillips Petroleum Company


R-23-E
R-24-E
T 42 S
RATHERFORD UNIT
SAN JUAN COUNTY, UTAH
1" = 1 mile
RCT 3-83
oil producer
water injector
water supply
domestic water
plugged & abandoned
shut in well
unit boundry

ATTACHMENT 3a:

WTR INJECTION WELL

CL1-12A (REV. 1964)

CHEMICAL & GEOLOGICAL LABORATORIES

P. O. Box 2794
Casper, Wyoming

WATER ANALYSIS REPORT

OPERATOR Phillips Petroleum Co. DATE 5-27-83 LAB NO. W30480
WELL NO. Rutherford Unit LOCATION
FIELD FORMATION
COUNTY San Juan INTERVAL
STATE Utah SAMPLE FROM

REMARKS & CONCLUSIONS:

Specific gravity @68°F	1.0646
Oil and grease, mg/l	2.5
Aluminum (Al), mg/l	0.90
Iron (Fe), mg/l	0.3
Total Sulfides, mg/l	ND(0.1)

Cations	mg/l	meq/l	Anions	mg/l	meq/l
Sodium	24574	1068.99	Sulfate	1190	24.75
Potassium	396	10.14	Chloride	52000	1466.40
Lithium	-	-	Carbonate	0	0.00
Calcium	5982	298.50	Bicarbonate	190	3.12
Magnesium	1419	116.64	Hydroxide	-	-
Iron	-	-	Hydrogen sulfide	-	-
Total Cations		1494.27	Total Anions		1494.27

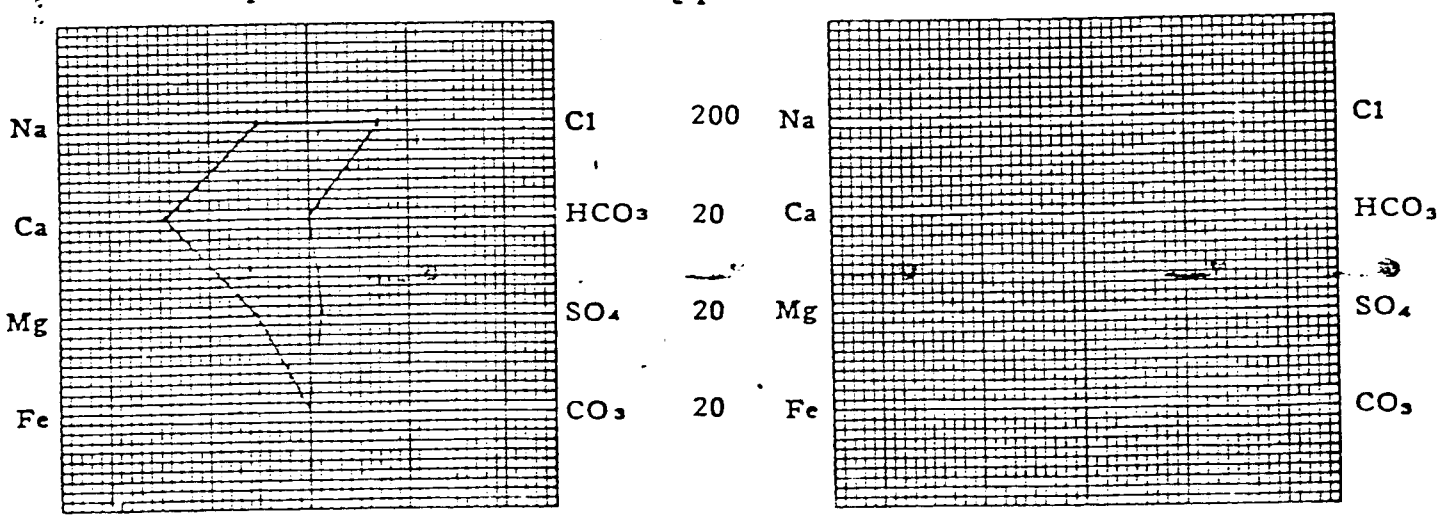
Total dissolved solids, mg/l	85655
NaCl equivalent, mg/l	86344
Observed pH	7.4

Specific resistance @ 68°F.:
Observed 0.095 ohm-meters
Calculated 0.086 ohm-meters

WATER ANALYSIS PATTERN

Sample above described

Scale
MEQ per Unit



(Na value in above graphs includes Na, K, and Li)
NOTE: Mg/l = Milligrams per liter Meq/l = Milligram equivalents per liter
Sodium chloride equivalent by Dunlap & Hawthorne calculation from components

formation water

ATTACHMENT 3b:

CL1-12A (REV. 1964).

CHEMICAL & GEOLOGICAL LABORATORIES

P. O. Box 2794
Casper, Wyoming

WATER ANALYSIS REPORT

OPERATOR Phillips Petroleum Company
WELL NO Ratherford Unit
FIELD
COUNTY San Juan
STATE Utah

DATE 7-22-83 LAB NO W30636
LOCATION
FORMATION
INTERVAL
SAMPLE FROM Battery #1 Free water knockout (7-5-83) @ 10:35 S/N 28568

REMARKS & CONCLUSIONS:

Cations	mg/l	meq/l
Sodium	30147	1311.38
Potassium	429	10.98
Lithium	--	--
Calcium	6865	342.56
Magnesium	1738	124.86
Iron	--	--
Total Cations		1807.78

Anions	mg/l	meq/l
Sulfate	1380	28.70
Chloride	63000	1776.60
Carbonate	0	0.00
Bicarbonate	151	2.48
Hydroxide	--	--
Hydrogen sulfide	--	--
Total Anions		1807.78

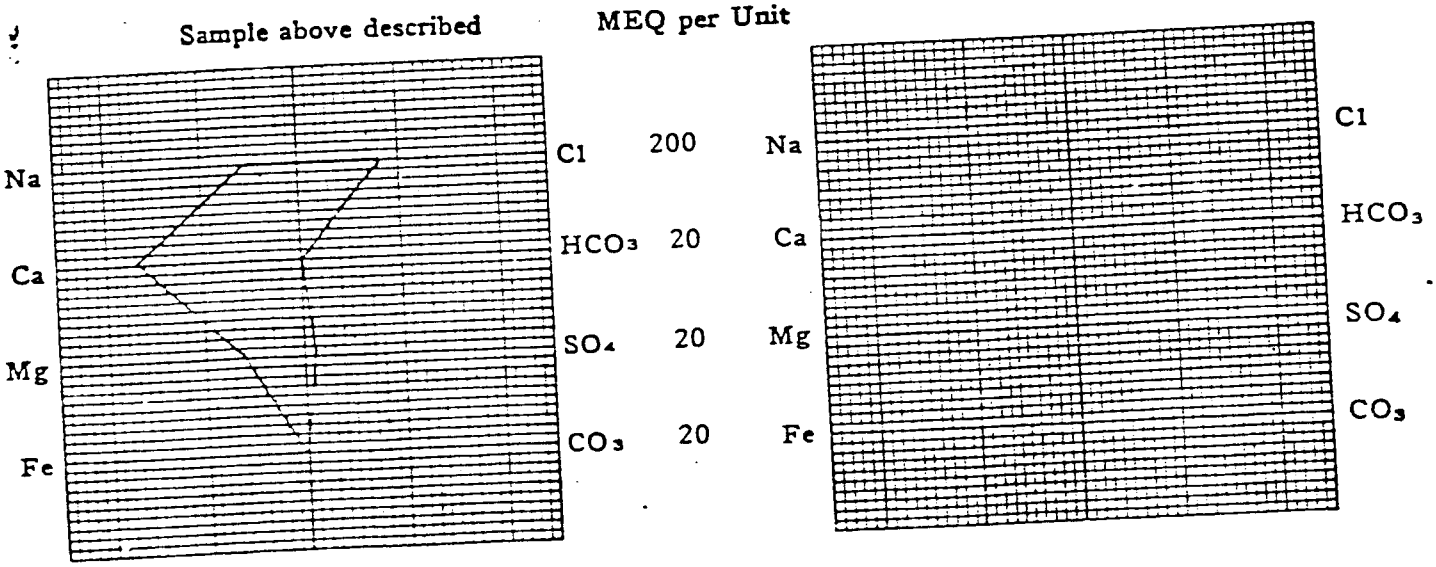
Total dissolved solids, mg/l	103633
NaCl equivalent, mg/l	104549
Observed pH	7.3

Specific resistance @ 68°F.:
Observed 0.087 ohm-meters
Calculated 0.078 ohm-meters

WATER ANALYSIS PATTERN

Sample above described

Scale
MEQ per Unit



(Na value in above graphs includes Na, K, and Li)
NOTE: Mg/l = Milligrams per liter Meq/l = Milligram equivalents per liter
Sodium chloride equivalent = by Dunlap & Hawthorne calculation from components

(Formerly 9-331)

DEPARTMENT OF THE INTERIOR (Other instructions on reverse side)

BUREAU OF LAND MANAGEMENT

Expires August 31, 1985

5. LEASE DESIGNATION AND SERIAL NO.: 14-20-603-355

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Navajo

7. UNIT AGREEMENT NAME: SW-I-4192

8. FARM OR LEASE NAME: Ratherford Unit

9. WELL NO.: 16W23

10. FIELD AND POOL, OR WILDCAT: Greater Aneth

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 16-T41S-R24E

12. COUNTY OR PARISH: San Juan

13. STATE: Utah

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL ☐ GAS WELL ☒ OTHER: Water injection well

2. NAME OF OPERATOR: Phillips Petroleum Company

3. ADDRESS OF OPERATOR: P. O. Box 2920, Casper, WY 82602

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: 1980' FSL, 1980' FWL (NE SW)

NOV 27 1985

DIVISION OF OIL, GAS & MINING

14. PERMIT NO.: 14-20-603-355

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 4706' RKB

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	X	ABANDON*	☐	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	☐
REPAIR WELL	☐	CHANGE PLANS	☐	(Other)			
(Other) Plug back to Zone I				(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

It is proposed to convert Ratherford Unit #16W23 from Zone I & II to Zone I water injection. After plugging back to Zone I, the well will be acidized with 9600 gallons 28% HCl and returned to injection.

A 10' x 8' x 6' fenced pit will be constructed on location in a previously disturbed area. Upon completion of the workover, the pit will be dried and recovered.

5-BLM, Farmington, NM
2-Utah O&G CC, Salt Lake City, Utah
1- P. J. Adamson
1- B. Conner, 318 B-TRW
1- J. R. Weichbrodt
1- C. M. Anderson
1- File RC
1- R. J. Murphy

18. I hereby certify that the foregoing is true and correct

SIGNED D. C. Gill (D. C. Gill) TITLE Area Manager DATE November 25, 1985

(This space for Federal or State office use)

APPROVED BY Leon B Feight TITLE VIC Manager DATE 12-6-85

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

UTAH DIVISION OF OIL, GAS AND MINING
CASING-BRADENHEAD TEST

OPERATOR: Phillips Petroleum

FIELD: Greater Aneth LEASE: Rutherford

WELL # A-9 16W23 SEC. 16 TOWNSHIP 41S RANGE 24E

STATE (FED.) FEE DEPTH 5708 TYPE WELL INJW MAX. INJ. PRESS. 1800

TEST DATE 6/17/86

CASING STRING	SIZE	SET AT	CMT	PRESSURE READINGS	REMARKS	FUTURE
SURFACE	13 3/8	173	175			
INTERMEDIATE	8 5/8	1498	800			
PRODUCTION	5 1/2	5729	550	200	Small blow gas with oil, did not blow down.	OK
				1500		
TUBING	2 3/8	5460	Baker Paker		model C-2	

CASING STRING	SIZE	SET AT	CMT	PRESSURE READINGS	REMARKS	FUTURE
SURFACE						
INTERMEDIATE						
PRODUCTION						
TUBING						

CASING STRING	SIZE	SET AT	CMT	PRESSURE READINGS	REMARKS	FUTURE
SURFACE						
INTERMEDIATE						
PRODUCTION						
TUBING						

Form 3160-5
(November 1983)
(Formerly 9-331)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Budget Bureau No. 1004-0135
Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

5. LEASE DESIGNATION AND SERIAL NO.: 14-20-603- 355

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: NAVAJO

1. OIL WELL ☐ GAS WELL ☐ OTHER Water Injector

7. UNIT AGREEMENT NAME: SW-I-4192

2. NAME OF OPERATOR: Phillips Petroleum Company

8. FARM OR LEASE NAME: Ratherford Unit

3. ADDRESS OF OPERATOR: P.O. Box 2920, Casper, WY 82602

9. WELL NO.: 16W23

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.) At surface: 1980' FSL, 1980 FWL NE SW

10. FIELD AND POOL, OR WILDCAT: Greater Aneth

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 16-T41S-R24E

API# 43-037-15722

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.): 4706' RKB

12. COUNTY OR PARISH: San Juan

13. STATE: Utah

16. **Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data**

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☐	ABANDON*	☐	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	☐
REPAIR WELL	☐	CHANGE PLANS	☐	(Other) plg. bk to Zone I & Acidize			XX
(Other)				(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Mar. 18, 1987 through Mar. 28, 1987

RU 3/18/87. Pull rods and tbg. Clean out to 5708'. Press tested, comm w/Zone I & II Set tailpipe at 5634' (btm of Zone I perfs) and pkr at 5450'. Treated w/750 gal 28% HCL. Sqzd Zone II 5520-5634' w/200 sx Class B Cmt. Tested sqz to 1000 psi, OK. Drld out cmt to 5620' PBTD. Perfd 5520-40', 5561-92', and 5598-5611', 4 SPF. Acidized w/6000 gal 28% HCL. Ran 2-7/8" tbg and wtr inj pkr. Set pkr at 5430'. RR 3/28/87. Hu to Injection 3/30/87.

Injection Before 178 BWPD at 1200 psi
Injection After 168 BWPD at 1200 psi

RECEIVED
AUG 4 1987
DIVISION OF OIL GAS & MINING

4-BLM, Farmington, NM
2-Utah O&G CC, SLC, UT
1-M. Williams, B'Ville
1-J. Landrum, Denver
1-J. Reno, Cortez
1-Chieftain
1-Mobil Oil
1-Texaco, Inc.
1-Chevron USA
1-File RC

18. I hereby certify that the foregoing is true and correct

SIGNED D. C. Gill TITLE Area Manager DATE 7/27/87

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

Form 3160-5
(November 1983)
(Formerly 9-331)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE* (Other instructions on reverse side)

Budget Bureau No. 1004-0135
Expires August 31, 1985

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

5. LEASE DESIGNATION AND SERIAL NO.

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
SW-I-4192

1. OIL WELL ☐ GAS WELL ☐ OTHER WATER INJECTION & WATER SUPPLY WELLS

7. UNIT AGREEMENT NAME
RATHERFORD UNIT #7960041920

2. NAME OF OPERATOR
PHILLIPS PETROLEUM COMPANY

8. FARM OR LEASE NAME

3. ADDRESS OF OPERATOR
152 N. DURBIN, 2ND FLOOR, CASPER, WYOMING 82601

9. WELL NO.
VARIOUS (see attached)

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.)
At surface
SEE ATTACHED

RECEIVED
MAR 20 1989
DIVISION OF OIL, GAS & MINING

10. FIELD AND POOL, OR WILDCAT
GREATER ANETH

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sections 1 thru 30
T41S - R23E & 24E

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)

12. COUNTY OR PARISH
San Juan

13. STATE
Utah

16. **Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data**

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☐	ABANDON*	☐	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	☐
REPAIR WELL	☐	CHANGE PLANS	☐	(Other) CHANGE OF OWNERSHIP			XX
(Other)	☐			(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

This is to advise all Water Injection and Water Supply Wells on the Ratherford Unit, listed on the attached sheet, were sold to Phillips Petroleum Company, effective August 1, 1985.

(former Operator - Phillips Oil Company)

3 - BLM, Farmington, NM
2 - Utah O&G CC, SLC, UT
1 - File

18. I hereby certify that the foregoing is true and correct

SIGNED S. H. Oden TITLE District Superintendent DATE March 17, 1989

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

FORM 10

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

MONTHLY OIL AND GAS PRODUCTION REPORT

OPERATOR NAME AND ADDRESS:

P J KONKEL
PHILLIPS PETROLEUM COMPANY
5525 HWY 64 NBU 3004
FARMINGTON NM 87401

UTAH ACCOUNT NUMBER: N0772

REPORT PERIOD (MONTH/YEAR): 6 / 93

AMENDED REPORT ☐ (Highlight Changes)

Well Name / API Number	Entity	Location	Producing Zone	Well Status	Days Oper	Production Volumes OIL(BBL)	GAS(MCF)	WATER(BBL)
#21-23 4303713754	06280	41S 24E 21	DSCR	POW	29	1374	883	58
#3-44 4303715031	06280	41S 24E 3	DSCR	POW	30	111	94	2905
#3-14 4303715124	06280	41S 24E 3	DSCR	POW	30	67	23	302
#9-12 4303715126	06280	41S 24E 9	DSCR	POW	30	112	654	17363
#9-14 4303715127	06280	41S 24E 9	DSCR	POW	30	201	315	423
#28-12 4303715336	06280	41S 24E 28	PRDX	POW	29	112	47	2428
#29-12 4303715337	06280	41S 24E 29	PRDX	POW	29	56	0	672
#29-32 4303715339	06280	41S 24E 29	DSCR	POW	29	1402	287	2224
#29-34 4303715340	06280	41S 24E 29	DSCR	POW	29	757	48	0
#30-32 4303715342	06280	41S 24E 30	DSCR	POW	29	588	1049	3744
#3-12 4303715620	06280	41S 24E 3	DSCR	POW	30	268	11	363
#9-34 4303715711	06280	41S 24E 9	DSCR	POW	30	45	46	9800
#10-12 4303715712	06280	41S 24E 10	DSCR	POW	30	45	23	1088
				TOTALS		5138	3480	41370

COMMENTS: Effective July 1, 1993, Phillips Petroleum Company has sold its interest in the Ratherford Unit to Mobil Exploration and Producing U.S., Incorporated, P. O. Box 633, Midland, Texas 79702. Mobil assumed operations on July 1, 1993.

I hereby certify that this report is true and complete to the best of my knowledge. Date: 8/11/93

Name and Signature: PAT KONKEL Pat Konkel Telephone Number: 505 599-3452

(6/93)

FORM 9

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

5. LEASE DESIGNATION & SERIAL NO.

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: NAVAJO TRIBAL

1. OIL WELL ☐ GAS WELL ☐ OTHER

7. UNIT AGREEMENT NAME: RATHERFORD UNIT

2. NAME OF OPERATOR: MOBIL OIL CORPORATION

8. FARM OR LEASE NAME

3. ADDRESS OF OPERATOR: P. O. BOX 633 MIDLAND, TX 79702

9. WELL NO.

RECEIVED
SEP 15 1993
DIVISION OF
OIL, GAS & MINING

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.)
At surface

At proposed prod. zone

10. FIELD AND POOL, OR WILDCAT: GREATER ANETH

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA

14. API NO.	15. ELEVATIONS (Show whether DF, RT, GR, etc.)	12. COUNTY	13. STATE
		SAN JUAN	UTAH

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☐	ABANDON	☐	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	☐
REPAIR WELL	☐	CHANGE PLANS	☐	(Other) CHANGE OF OPERATOR			
(Other)				(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

APPROX. DATE WORK WILL START _____

DATE OF COMPLETION _____

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

* Must be accompanied by a cement verification report.

AS OF JULY1, 1993, MOBIL OIL CORPORATION IS THE OPERATOR OF THE RATHERFORD UNIT. ATTACHED ARE THE INDIVIDUAL WELLS.

18. I hereby certify that the foregoing is true and correct

SIGNED Shirley Todd TITLE ENV. & REG TECHNICIAN DATE 9-8-93

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

See Instructions On Reverse Side

(3/89)

12W-44	43-037-16405	14-20-603-246A	SEC. 12, T41S, R23E	SE/SE 660 FSL; 660 FEL
12W-44A	43-037-31543	14-20-603-246A	SEC. 12, T41S, R23E	SE/SE 807 FEL; 772 FSL
13-11W	43-037-31152	14-20-603-247A	SEC. 13, T41S, R23E	NW/NW 500 FNL; 660 FWL
13-12	43-037-31127	14-20-603-247A	SEC. 13, T41S, R23E	SW/NW 1705 FNL; 640 FWL
13W-13	43-037-15851	14-20-603-247A	SEC. 13, T41S, R23E	NW/SW 1980 FSL; 4620 FEL
13-14	43-037-31589	14-20-603-247A	SEC. 13, T41S, R23E	660 FSL; 660 FWL
13-21	43-037-31128	14-20-603-247A	SEC. 13, T41S, R23E	NE/NW 660 FNL; 1920 FWL
13W-22	43-037-15852	14-20-603-247A	SEC. 13, T41S, R23E	SE/NW 1988 FNL; 3300 FEL
13-23	43-037-31129	14-20-603-247A	SEC. 13, T41S, R23E	NE/SW 1980 FSL; 1930 FWL
~~13W-44~~	~~43-037-15853~~	~~14-20-603-247~~	~~SEC. 13, T41S, R23E~~	~~660 FSL; 3300 FEL~~
13W-32	43-037-16406	14-20-603-247A	SEC. 13, T41S, R23E	1881 FNL; 1979 FEL
13W-33	43-037-15855	14-20-603-247A	SEC. 13, T41S, R23E	NW/SE 1970 FSL; 1979 FEL
13W-34	43-037-31130	14-20-603-247A	SEC. 13, T41S, R23E	SW/SE 660 FSL; 1980 FEL
13-41	43-037-15856	14-20-603-247A	SEC. 13, T41S, R23E	NE/NE 660 FNL; 660 FEL
13W-42	43-037-15857	14-20-603-247A	SEC. 13, T41S, R23E	SE/NE 2139; 585 FEL
13-43	43-037-31131	14-20-603-247A	SEC. 13, T41S, R23E	NE/SE 1700 FSL; 960 FEL
13W-44	43-037-16407	14-20-603-247A	SEC. 13, T41S, R23E	SE/SE 635 FSL; 659 FEL
~~14-03~~	~~NA~~	~~14-20-603-4037~~	~~SEC. 11, T41S, R23E~~	~~SW/SW 660 FSL; 660 FEL~~
14-32	43-037-15858	14-20-603-247A	SEC. 14, T41S, R23E	2130 FNL; 1830 FEL
14-41	43-037-31623	14-20-603-247A	SEC. 14, T41S, R23E	NE/NE 521 FEL; 810 FNL
14W-42	43-037-15860	14-20-603-247A	SEC. 14, T41S, R23E	SE/NE 1976 FNL; 653 FEL
14W-43	43-037-16410	14-20-603-247A	SEC. 14, T41S, R23E	3300 FSL; 4770 FEL
14-33	43-037-15859	14-20-603-247	SEC. 14, T41S, R23E	2130 FSL; 1830 FEL
15-12	43-037-15715	14-20-603-355	SEC. 15, T41S, R24E	1820 FNL; 500 FWL
15W-21	43-037-16411	14-20-603-355	SEC. 15, T41S, R24E	660 FNL; 1820 FWL
15-22	43-037-30449	14-20-603-355	SEC. 15, T41S, R24E	SE/NW, 1980 FNL; 2050 FWL
15-32	43-037-15717	14-20-603-355A	SEC. 15, T41S, R24E	1980 FNL; 1980 FEL
15-33	43-037-15718	14-20-603-355	SEC. 15, T41S, R24E	NW/SE 1650 FSL; 1980 FEL
15-41	43-037-15719	14-20-603-355	SEC. 15, T41S, R24E	660 FNL; 660' FEL
15-42	43-037-30448	14-20-603-355	SEC. 15, T41S, R24E	SE/NE 2020 FNL; 820 FEL
16W-12	43-037-15720	14-20-603-355	SEC. 16, T41S, R24E	SW/NW 1880 FNL; 660 FWL
16-13	43-037-31168	14-20-603-355	SEC. 16, T41S, R24E	1980 FSL; 660 FWL
16W-14	43-037-15721	14-20-603-355	SEC. 16, T41S, R24E	SW/SW 660 FSL; 660 FWL
16W-21	43-037-16414	14-20-603-355	SEC. 16, T41S, R24E	NE/NW 660 FNL; 1880 FWL
16W-23	43-037-15722	14-20-603-355	SEC. 16, T41S, R24E	NE/SW 1930 FSL; 1980 FWL
16-32	43-037-15723	14-20-603-355	SEC. 16, T41S, R24E	1980 FNL; 1980' FEL
16-34	43-037-15724	14-20-603-355	SEC. 16, T41S, R24E	660 FNL; 1980' FEL
16-41	43-037-15725	14-20-603-355	SEC. 16, T41S, R24E	660 FNL; 660 FEL
16W-43	43-037-16415	14-20-603-355	SEC. 16, T41S, R24E	NE/SE 2140 FSL; 820 FEL
17-11	43-037-31169	14-20-603-353	SEC. 17, T41S, R24E	NW/NW 1075' FNL; 800' FWL
17W-12	43-037-15726	14-20-603-353	SEC. 17, T41S, R24E	SW/NW 1980' FNL; 510' FWL
17-13	43-037-31133	14-20-603-353	SEC. 17, T41S, R24E	NW/SW 2100' FSL; 660' FWL
17W-14	43-037-15727	14-20-603-353	SEC. 17, T41S, R24E	SW/SW 660' FSL; 660' FWL
17W-21	43-037-16416	14-20-603-353	SEC. 17, T41S, R24E	510' FNL; 1830' FWL
17-22	43-037-31170	14-20-603-353	SEC. 17, T41S, R24E	1980' FNL, 1980' FWL
17W-23	43-037-15728	14-20-603-353	SEC. 17, T41S, R24E	NE/SW 1980' FWL; 1880' FSL
17-31	43-037-31178	14-20-603-353	SEC. 17, T41S, R24E	NW/NE 500' FNL; 1980' FEL
17-32W	43-037-15729	14-20-603-353	SEC. 17, T41S, R24E	SW/NE 1830' FNL; 2030' FEL
17-33	43-037-31134	14-20-603-353	SEC. 17, T41S, R24E	NW/SE 1980' FSL; 1845' FEL
17-34W	43-037-15730	14-20-603-353	SEC. 17, T41S, R24E	SW/SE 560' FSL; 1880' FEL
17W-41	43-037-15731	14-20-603-353	SEC. 17, T41S, R24E	610' FNL; 510' FEL
17-42	43-037-31177	14-20-603-353	SEC. 17, T41S, R24E	SE/NE 1980; FNL, 660' FEL
17-44	43-037-15732	14-20-603-353	SEC. 17, T41S, R24E	660 FSL; 660' FEL
17W-43	43-037-16417	14-20-603-353	SEC. 17, T41S, R24E	NE/SE 1980' FSL; 660' FEL
18-11	43-037-15733	14-20-603-353	SEC. 18, T41S, R24E	NW/NW 720' FNL; 730' FWL
18-12W	43-037-31153	14-20-603-353	SEC. 18, T41S, R24E	SW/NW 1980' FNL; 560' FWL
18W-21	43-037-16418	14-20-603-353	SEC. 18, T41S, R24E	NE/NW 660' FNL; 1882' FWL
18-22	43-037-31236	14-20-603-353	SEC. 18, T41S, R24E	SW/NW 2200' FNL; 2210' FWL
18W-23	43-037-30244	14-20-603-353	SEC. 18, T41S, R24E	NE/SW 2385' FSL; 2040' FWL
18W-14	43-037-15735	14-20-603-353	SEC. 18, T41S, R24E	SW/SW 810' FSL; 600' FWL
18-24	43-037-31079	14-20-603-353	SEC. 18, T41S, R24E	SE/SW 760' FSL; 1980' FWL
18-31	43-037-31181	14-20-603-353	SEC. 18, T41S, R24E	NW/NE 795' FNL; 2090; FEL
~~18W-32~~	~~43-037-15736~~	~~14-20-603-353~~	~~SEC. 18, T41S, R24E~~	~~SW/NE 2140' FNL; 1830' FEL~~
18-33	43-037-31135	14-20-603-353	SEC. 18, T41S, R24E	NW/SE 1870' FSL; 1980' FEL
18-34W	43-037-15737	14-20-603-353	SEC. 18, T41S, R24E	SW/SE 780' FSL; 1860 FEL
18W-41	43-037-15738	14-20-603-353	SEC. 18, T41S, R24E	NE/NE 660' FNL; 660' FEL
18-42	43-037-31182	14-20-603-353	SEC. 18, T41S, R24E	SE/NE 2120' FNL; 745' FEL
18W-43	43-037-16419	14-20-603-353	SEC. 18, T41S, R24E	NE/SE 1980' FSL; 660' FEL
18-44	43-037-31045	14-20-603-353	SEC. 18, T41S, R24E	SE/SE 660' FSL; 660' FEL
19-11	43-037-31080	14-20-603-353	SEC. 19, T41S, R24E	NW/NW 660' FNL; 660' FWL
19-12	43-037-15739	14-20-603-353	SEC. 19, T41S, R24E	600' FWL; 1980' FNL
19-14	43-037-15740	14-20-603-353	SEC. 19, T41S, R24E	600' FSL; 660' FEL

FORM 11

STATE OF UTAH
/ISION OF OIL, GAS AND MINING

MONTHLY OIL AND GAS DISPOSITION REPORT

OPERATOR NAME AND ADDRESS:

LB Sheffield
~~BRIAN BERRY~~
~~M E P N A~~ MOBIL
~~POB 219031 1807A RENTWR~~ P.O. DRAWER G
DALLAS TX 75221-9031 CORTEZ, Co. 81321

UTAH ACCOUNT NUMBER: N7370

REPORT PERIOD (MONTH/YEAR): 7 / 93

AMENDED REPORT ☐ (Highlight Changes)

*931001 updated - fee

ENTITY NUMBER	PRODUCT	GRAVITY BTU	BEGINNING INVENTORY	VOLUME PRODUCED	DISPOSITIONS TRANSPORTED	DISPOSITIONS USED ON SITE	DISPOSITIONS FLARED/VENTED	DISPOSITIONS OTHER	ENDING INVENTORY
05980	OIL			177609	177609	0			
	GAS			72101	66216	5885			
11174	OIL								
	GAS								
	OIL								
	GAS								
	OIL								
	GAS								
	OIL								
	GAS								
	OIL								
	GAS								
	OIL								
	GAS								
TOTALS				249710	243825	5885			

RECEIVED
SEP 13 1993
DIVISION OF
OIL, GAS & MINING

COMMENTS: PLEASE NOTE ADDRESS CHANGE. ROBIN ~~ASSU~~ PRODUCTION REPORTS WILL BE COMPILED AND SENT FROM THE CORTEZ, Co. OFFICE IN THE FUTURE.

I hereby certify that this report is true and complete to the best of my knowledge

Date: 9/5/93

Name and Signature: Lowell B Sheffield

Telephone Number: 303 565 2212 ~~214 658 2528~~

(6/93)

FORM=NR0003.FRM 07/2

Sept 29, 1993

TO: Lisha Cordova - Utah Mining Oil & Gas

FROM: Janice Easley
BLM Farmington, NM
505 599-6355

Here is copy of Ratherford Unit Successor Operator.

4 pages including this one.

Re: Rutherford Unit (GC)

Navajo Area Office
P. O. Box 1060
Gallup, New Mexico 87305-1060

ARES/543

JUL 26 1993

Mr. G. D. Cox
Mobil Exploration and
Producing North America, Inc.
P. O. Box 633
Midland, Texas 79702

Dear Mr. Cox:

Enclosed for your information and use is the approved Designation of Operator between the Phillips Petroleum Company and Mobil Exploration and Producing North America, Inc. for the Ratherford Unit.

Please note that all other concerned parties will be furnished their copy of the approved document.

Sincerely,

ACTING Area Director

Enclosure

cc: Bureau of Land Management, Farmington District Office w/enc.
TNN, Director, Minerals Department w/enc.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

DESIGNATION OF OPERATOR

Phillips Petroleum Company is, on the records of the Bureau of Indian Affairs, operator of the Ratherford Unit,

AREA OFFICE: Window Rock, Arizona
LEASE NO: Attached hereto as Exhibit "A"

and, pursuant to the terms of the Ratherford Unit Agreement, is resigning as Unit Operator effective July 1, 1993, and hereby designates

NAME: Mobil Exploration and Producing North America Inc., duly elected pursuant to the terms of the Ratherford Unit Agreement,

ADDRESS: P. O. Box 633, Midland, Texas 79702
Attn: G. D. Cox

as Operator and local agent, with full authority to act on behalf of the Ratherford Unit lessees in complying with the terms of all leases and regulations applicable thereto and on whom the authorized officer may serve written or oral instructions in securing compliance with the Operating Regulations (43 CFR 3160 and 25 CFR 211 and 212) with respect to (described acreage to which this designation is applicable):

Attached hereto as Exhibit "A"

Bond coverage under 25 CFR 211, 212 or 225 for lease activities conducted by the above named designated operator is under Bond Number 05202782 (attach copy). Evidence of bonding is required prior to the commencement of operations.

It is understood that this designation of operator does not relieve any lessee of responsibility for compliance with the terms of the leases and the Operating Regulations. It is also understood that this designation of operator does not constitute an assignment of any interest in the leases.

In case of default on the part of the designated operator, the lessees will make full and prompt compliance with all regulations, lease terms, stipulations, or orders of the Secretary of the Interior or his representative.

Attached is the appropriate documentation relevant to this document.

The designated operator agrees to promptly notify the authorized officer of any change in the operatorship of said Ratherford Unit.

Phillips Petroleum Company

June 17, 1993 By: M. B. Frank, J.
Attorney-in-Fact

Mobil Exploration and Producing
North America Inc.

June 11, 1993 By: B. D. Martiny
Attorney-in-Fact B.D. MARTINY

ACTING AREA DIRECTOR 7/9/93
APPROVED BY TITLE DATE

APPROVED PURSUANT, TO SECRETARIAL REDELEGATION ORDER 209 DM 8 AND 230 DM 3.
This form does not constitute an information collection as defined by 44 U.S.C. 3502 and therefore does not require OMB approval.

EXHIBIT "A"

ATTACHED TO AND MADE A PART OF DESIGNATION OF SUCCESSOR OPERATOR, RATHERFORD UNIT

EXHIBIT "C"

Revised as of September 29, 1992)
SCHEDULE OF TRACT PERCENTAGE PARTICIPATION

Tract Number	Description of Land	Serial Number and Effective Date of Lease	Tract Percentage Participation
1	S/2 Sec. 1, E/2 SE/4 Sec. 2, E/4 Sec. 11, and all of Sec. 12, T-41-S, R-23-E, S.L.M. San Juan County, Utah	14-20-603-246-A Oct. 5, 1953	11.0652565
2	SE/4 and W/2 SW/4 Sec. 5, the irregular SW/4 Sec. 6, and all of Sec. 7 and 8, T-41-S, R-24-E, San Juan County, Utah	14-20-603-368 Oct. 26, 1953	14.4159942
3	SW/4 of Sec. 4, T-41-S, R-24-E, San Juan County, Utah	14-20-603-5446 Sept. 1, 1959	.5763826
4	SE/4 Sec. 4, and NE/4 Sec. 9, T-41-S, R-24-E, San Juan County, Utah	14-20-603-4035 March 3, 1958	1.2587779
5	SW/4 of Sec. 3, T-41-S, R-24-E, S.L.M., San Juan County, Utah	14-20-603-5445 Sept. 3, 1959	.4667669
6	NW/4 of Sec. 9, T-41-S, R-24-E, S.L.M., San Juan County, Utah	14-20-603-5045 Feb. 4, 1959	1.0187043
7	NW/4, W/2 NE/4, and SW/4 Sec. 10, SE/4 Sec. 9, T-41-S, R-24-E, San Juan County, Utah	14-20-603-4043 Feb. 18, 1958	3.5097575
8	SW/4 Sec. 9, T-41-S, R-24-E, S.L.M. San Juan County, Utah	14-20-603-5046 Feb. 4, 1959	1.1141679
9	SE/4 Sec. 10 and S/2 SW/4 Sec. 11 T-41-S, R-24-E, San Juan County, Utah	14-20-603-4037 Feb. 14, 1958	2.6186804
10	All of Sec. 13, E/2 Sec. 14, and E/2 SE/4 and N/2 Sec. 24, T-41-S, R-23-E, S.L.M., San Juan County, Utah	14-20-603-247-A Oct. 5, 1953	10.3108861
11	Sections 17, 18, 19 and 20, T-41-S, R-24-E, San Juan County Utah	14-20-603-353 Oct. 27, 1953	27.3389265
12	Sections 15, 16, 21, and NW/4, and W/2 SW/4 Sec. 22, T-41-S, R-24-E, San Juan County, Utah	14-20-603-355 Oct. 27, 1953	14.2819339
13	W/2 Section 14, T-41-S, R-24-E, San Juan County, Utah	14-20-603-370 Oct. 26,1953	1.8500847
14	N/2 and SE/4, and E/2 SW/4 Sec. 29, NE/4 and E/2 SE/4 and E/2 W/2 irregular Sec. 30, and E/2 NE/4 Sec. 32, T-41-S, R-24-E, San Juan County, Utah	14-20-603-407 Dec. 10, 1953	6.9924969
15	NW/4 Sec. 28, T-41-S, R24-E San Juan County, Utah	14-20-603-409 Dec. 10, 1953	.9416393
16	SE/4 Sec. 3, T-41-S, R-24-E San Juan County, Utah	14-20-0603-6504 July 11, 1961	.5750254
17	NE/4 Sec. 3, T-41-S, R-24-E San Juan County, Utah	14-20-0603-6505 July 11, 1961	.5449292
18	NW/4 Sec. 3, T-41-S, R-24-E San Juan County, Utah	14-20-0603-6506 July 11, 1961	.5482788
19	NE/4 Sec. 4, T-41-S, R24-E San Juan County, Utah	14-20-0603-7171 June 11, 1962	.4720628
20	E/2 NW/4 Sec. 4, T-41-S, R-24-E San Juan County, Utah	14-20-0603-7172 June 11, 1962	.0992482
100% Indian Lands		TOTAL 12,909.74	100.0000000

Division of Oil, Gas and Mining

PHONE CONVERSATION DOCUMENTATION FORM

Route original/copy to:

[] Well File _____

_____

(Location) Sec___Twp___Rng___

(API No.) _____

[] Suspense

(Return Date) _____

(To - Initials) _____

XXX Other

OPERATOR CHANGE

1. Date of Phone Call: 10-6-93 Time: 9:30

2. DOGM Employee (name) L. CORDOVA (Initiated Call XXX)

Talked to:

Name GLEN COX (Initiated Call []) - Phone No. (915)688-2114

of (Company/Organization) MOBIL

3. Topic of Conversation: OPERATOR CHANGE FROM PHILLIPS TO MOBIL "RATHERFORD UNIT".

(NEED TO CONFIRM HOW OPERATOR WANTS THE WELLS SET UP - MEPNA AS PER BIA APPROVAL OR MOBIL OIL CORPORATION AS PER SUNDRY DATED 9-8-93?)

4. Highlights of Conversation:

MR. COX CONFIRMED THAT THE WELLS SHOULD BE SET UNDER ACCOUNT N7370/MEPNA AS PER BIA APPROVAL, ALSO CONFIRMED THAT PRODUCTION & DISPOSITION REPORTS WILL NOW BE HANDLED OUT OF THEIR CORTEZ OFFICE RATHER THAN DALLAS.

MEPNA-

PO DRAWER G

CORTEZ, CO 81321

(303)565-2212

*ADDRESS CHANGE AFFECTS ALL WELLS CURRENTLY OPERATORED BY MEPNA, CURRENTLY REPORTED OUT OF DALLAS (MCELMO CREEK).

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

OCT 25 1993

TRANSFER OF AUTHORITY TO INJECT - UIC FORM 5

Well name and number: _____

Field or Unit name: RATHERFORD UNIT API no. _____

Well location: QQ ____ section ___ township ___ range ___ county _____

Effective Date of Transfer: July 1, 1993

CURRENT OPERATOR

Transfer approved by:

Name Ed Hasely Company Phillips Petroleum Company

Signature Ed Hasely Address 5525 HWY. 64

Title Environmental Engineer Farmington, NM 87401

Date October 22, 1993 Phone (505) 599-3460

Comments:

NEW OPERATOR

Transfer approved by:

Name Shirley Todd Company Mobil Exploration & Producing North America

Signature Shirley Todd Address P O Box 633

Title Env. & Reg. Technician Midland, TX 79702

Date October 7, 1993 Phone (915) 688-2585

Comments:

(State use only)
Transfer approved by _____ Title UIC Manager

Approval Date 10-27-93

Lisha Cordova (801) 538-5340

(3/89)

BEFORE THE OIL AND GAS CONSERVATION COMMISSION OF THE STATE OF UTAH

APPLICATION OF PHILLIPS PETROLEUM COMPANY FOR THE APPROVAL OF THE UNIT OPERATIONS AND PRESSURE MAINTENANCE PROGRAM FOR THE RATHERFORD UNIT IN THE GREATER ANETH AREA, SAN JUAN COUNTY, UTAH	)	CAUSE NO. 63

ORDER

This Cause came on for hearing before the Oil and Gas Conservation Commission of the State of Utah at 10 o'clock a. m. on Wednesday, September 13, 1961, in the Crystal Room, Hotel Newhouse, Fourth South at Main Street, Salt Lake City, Utah, pursuant to notice duly and regularly given. The entire Commission, except Walter G. Mann, was present, Edward W. Clyde presiding. Appearances were made as follows: Cecil C. Hamilton, attorney, on behalf of Phillips Petroleum Company; Clair M. Senior, attorney, on behalf of Texaco, Inc.; Gordon Mayberry, attorney, on behalf of Continental Oil Company; R. R. Robison on behalf of Shell Oil Company. Others present included Carl Trawick, on behalf of United States Geological Survey; and J. R. White, on behalf of Texaco, Inc.

Evidence in support of the application was introduced by Phillips Petroleum Company, the applicant and Unit Operator of the Ratherford Unit, which embraces as the unit area the following described land in San Juan County, State of Utah, to wit:

TOWNSHIP 41 SOUTH, RANGE 23 EAST, SLBM

Section 1:	All	Sections 12 and 13:	All
Section 2:	S/2	Section 14:	S/2
Section 11:	S/2	Section 24:	All

TOWNSHIP 41 SOUTH, RANGE 24 EAST, SLBM

Section 3:	SW/4	Sections 15 through 21:	All
Section 4:	S/2	Section 22:	NW/4 and S/2 of the SW/4
Sections 5 through 9:	All		
Section 10:	S/2 and NW/4 and W/2 of NE/4	Section 23:	NE/4 and E/2 of NE/4 and W/2 of SW/
Section 11:	S/2 of SW/4		
Section 14:	W/2	Section 29 and 30:	All
		Section 31:	N/2
		Section 32:	W/2

R. R. Robison on behalf of Shell Oil Company stated that (as contemplated by paragraph No. 5 of the Commission's order of February 24, 1959, in Cause No. 17 authorizing the drilling of certain test wells) Shell would submit to the Commission, as arbiter, the question as between Shell and Superior Oil Company

of the monetary value, if any, to be attributed to three test wells drilled within the Ratherford Unit area pursuant to said order of February 24, 1959.

No objection to the granting of the application was filed or expressed. The Shell Oil Company, Texaco, Inc. and Continental Oil Company expressed their support of the application of Phillips Petroleum Company.

FINDINGS OF FACT

The Commission finds that:

1. The unitized operation of the Ratherford Unit Area will enable pressure maintenance operations to be initiated and permit such Area to be operated in a manner which will prevent waste, protect correlative rights and result in greater ultimate recovery of oil and gas.

2. The Ratherford Unit Agreement has been approved by the various signatory parties as fair, reasonable and acceptable.

3. The water injection pressure maintenance program proposed by the applicant appears to be proper and designed to result in the greatest economic recovery of oil and gas to the end that all concerned, including the general public, may realize and enjoy the greatest good from the oil and gas resources of the unitized lands.

O R D E R

THEREFORE, IT IS ORDERED BY THE COMMISSION, and subject to its continuing jurisdiction, that:

1. Unit operation of the Ratherford Unit Area under the Ratherford Unit Agreement is approved.

2. The plan and program of water injection pressure maintenance operations proposed by applicant in its application filed herein should be and the same is hereby approved and the unit operator is authorized to proceed with and under such plan and program as soon as the Ratherford Unit Agreement becomes effective and operative.

3. If, at any time or from time to time, it appears necessary or desirable to the unit operator to alter or modify the hereby approved plan of pressure maintenance, any such alteration or modification shall be submitted for

and shall be subject to approval by the Commission or its delegated representative, which approval may be given without notice or hearing, unless otherwise ordered or directed by the Commission.

Dated this 13th day of September, 1961.

THE OIL AND GAS CONSERVATION
COMMISSION OF THE STATE OF UTAH

Edward W. Clyde, Commissioner presiding

C. R. Henderson, Chairman

M. V. Hatch, Commissioner

C. S. Thomson, Commissioner

Walter G. Mann, Commissioner

Division of Oil, Gas and Mining
OPERATOR CHANGE WORKSHEET

Routing:
1-~~VLC~~/7-SJ
2-~~DTS~~/8-FILE
3-VLC
4-RJF
5-~~DTS~~
6-FILE

Attach all documentation received by the division regarding this change.
Initial each listed item when completed. Write N/A if item is not applicable.

☒ Change of Operator (well sold) ☐ Designation of Agent
☐ Designation of Operator ☐ Operator Name Change Only

The operator of the well(s) listed below has changed (EFFECTIVE DATE: 7-1-93)

TO (new operator) MEPNA
(address) PO DRAWER G
CORTEZ, CO 81321
GLEN COX (915)688-2114
phone (303) 565-2212
account no. N7370

FROM (former operator) PHILLIPS PETROLEUM COMPANY
(address) 5525 HWY 64 NBU 3004
FARMINGTON, NM 87401
PAT KONKEL
phone (505) 599-3452
account no. N0772(A)

Well(s) (attach additional page if needed): *RATHERFORD UNIT (NAVAJO)

Name: **SEE ATTACHED**	API: 43-037-15722	Entity:	Sec	Twp	Rng	Lease Type:
Name:	API:	Entity:	Sec	Twp	Rng	Lease Type:
Name:	API:	Entity:	Sec	Twp	Rng	Lease Type:
Name:	API:	Entity:	Sec	Twp	Rng	Lease Type:
Name:	API:	Entity:	Sec	Twp	Rng	Lease Type:
Name:	API:	Entity:	Sec	Twp	Rng	Lease Type:
Name:	API:	Entity:	Sec	Twp	Rng	Lease Type:

OPERATOR CHANGE DOCUMENTATION

Lec 1. (Rule R615-8-10) Sundry or other legal documentation has been received from former operator (Attach to this form). (Req. 8-20-93) (6/93 Prod. Rpt. 8-16-93)

Lec 2. (Rule R615-8-10) Sundry or other legal documentation has been received from new operator (Attach to this form). (Req. 8-31-93) (Rec'd 9-14-93)

N/A 3. The Department of Commerce has been contacted if the new operator above is not currently operating any wells in Utah. Is company registered with the state? (yes/no) _____ If yes, show company file number: _____.

Lec 4. **(For Indian and Federal Wells ONLY)** The BLM has been contacted regarding this change (attach Telephone Documentation Form to this report). Make note of BLM status in comments section of this form. Management review of **Federal and Indian** well operator changes should take place prior to completion of steps 5 through 9 below.

Lec 5. Changes have been entered in the Oil and Gas Information System (Wang/IBM) for each well listed above. (O&G wells 10-6-93) (wiw's 10-26-93)

Lec 6. Cardex file has been updated for each well listed above. (O&G wells 10-6-93) (wiw's 10-26-93)

Lec 7. Well file labels have been updated for each well listed above. (O&G wells 10-6-93) (wiw's 10-26-93)

Lec 8. Changes have been included on the monthly "Operator, Address, and Account Changes" memo for distribution to State Lands and the Tax Commission. (10-6-93)

Lec 9. A folder has been set up for the Operator Change file, and a copy of this page has been placed there for reference during routing and processing of the original documents.

– OVER –

PERATOR CHANGE WORKSHEET (CONTINUED) Initial each item when completed. Write N/A if item is not applicable.

NTITY REVIEH

LEC 1. (Rule R615-8-7) Entity assignments have been reviewed for all wells listed above. Were entity changes made? (yes/no) ____ (If entity assignments were changed, attach copies of Form 6, Entity Action Form).

N/A 2. State Lands and the Tax Commission have been notified through normal procedures of entity changes.

OND VERIFICATION (Fee wells only)

LEC/N/A 1. (Rule R615-3-1) The new operator of any fee lease well listed above has furnished a proper bond.

__ 2. A copy of this form has been placed in the new and former operators' bond files.

__ 3. The former operator has requested a release of liability from their bond (yes/no) ___. Today's date _____ 19___. If yes, division response was made by letter dated _____ 19___.

LEASE INTEREST OHNER NOTIFICATION RESPONSIBILITY

N/A 1. (Rule R615-2-10) The former operator/lessee of any **fee lease** well listed above has been notified by letter dated _____ 19___, of their responsibility to notify any person with an interest in such lease of the change of operator. Documentation of such notification has been requested.
DTS 11-10-93

N/A 2. Copies of documents have been sent to State Lands for changes involving **State leases**.

FILMING

__ 1. All attachments to this form have been microfilmed. Date: 11-17 1993.

FILING

LEC 1. Copies of all attachments to this form have been filed in each well file.

LEC 2. The original of this form and the original attachments have been filed in the Operator Change file.

COMMENTS

931006 BIA/Bfm Approved 7-9-93.

E71/34-35

Division of Oil, Gas and Mining

PHONE CONVERSATION DOCUMENTATION FORM

Route original/copy to:

[ ] Well File _____

_____

(Location) Sec___Twp___Rng___

(API No.) _____

[ ] Suspense

(Return Date) _____

(To - Initials) _____

XXX Other

OPER NM CHG

_____

_____

1. Date of Phone Call: 8-3-95 Time: _____

2. DOGM Employee (name) L. CORDOVA (Initiated Call [ ])

Talked to:

Name R. J. FIRTH (Initiated Call XX) - Phone No. ( )

of (Company/Organization) _____

3. Topic of Conversation: M E P N A / N7370

4. Highlights of Conversation:

OPERATOR NAME IS BEING CHANGED FROM M E P N A (MOBIL EXPLORATION AND PRODUCING NORTH AMERICA INC) TO MOBIL EXPLOR & PROD. THE NAME CHANGE IS BEING DONE AT THIS TIME TO ALLEVIATE CONFUSION, BOTH IN HOUSE AND AMONGST THE GENERAL PUBLIC.

*SUPERIOR OIL COMPANY MERGED INTO M E P N A 4-24-86 (SEE ATTACHED).

Mobil Oil Corporation

P.O. BOX 5444
DENVER, COLORADO 80217-5444

May 14, 1986

RECEIVED
MAY 16 1986

DIVISION OF
OIL, GAS & MINING

Utah Board of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Attn: R. J. Firth
Associate Director

SUPERIOR OIL COMPANY MERGER

Dear Mr. Firth:
On September 20, 1984, The Superior Oil Company (Superior) became a wholly owned subsidiary of Mobil Corporation. Since January 1, 1985, Mobil Oil Corporation (MOC), another wholly owned subsidiary of Mobil Corporation, has acted as agent for Superior and has operated the Superior-owned properties.

On April 24, 1986, Superior was merged with Mobil Exploration and Producing North America Inc. (MEPNA), which is also a wholly owned subsidiary of Mobil Corporation. MEPNA is the surviving company of the merger.

This letter is to advise you that all properties held in the name of Superior will now be held in the name of MEPNA; and that these properties will continue to be operated by MOC as agent for MEPNA.

Attached is a listing of all wells and a separate listing of injection-disposal wells, Designation of Agent and an organization chart illustrating the relationships of the various companies. If you have any questions or require additional documentation of this merger, please feel free to contact me at the above address or (303) 298-2577.

Very truly yours,

R. D. Baker
Environmental Regulatory Manager

CNE/rd
CNE8661

STATE OF UTAH
INVENTORY OF INJECTION WELLS

OPERATOR	API NO.	WELL	TNS	RGE	SE	WELLTYPE	INDIAN COUNT
MEPNA (MOBIL	43-037-15722	16W23	41S	24E	16	INJW	Y
MEPNA (MOBIL	43-037-16414	16W21	41S	24E	16	INJW	Y
MEPNA (MOBIL	43-037-16416	17W21	41S	24E	17	INJW	Y
MEPNA (MOBIL	43-037-15726	17W12	41S	24E	17	INJW	Y
MEPNA (MOBIL	43-037-15731	17W41	41S	24E	17	INJW	Y
MEPNA (MOBIL	43-037-16417	17W43	41S	24E	17	INJW	Y
MEPNA (MOBIL	43-037-15728	17W23	41S	24E	17	INJW	Y
MEPNA (MOBIL	43-037-15730	17W34	41S	24E	17	INJW	Y
MEPNA (MOBIL	43-037-15729	17W32	41S	24E	17	INJW	Y
MEPNA (MOBIL	43-037-15727	17W14	41S	24E	17	INJW	Y
MEPNA (MOBIL	43-037-31153	18W12	41S	24E	18	INJW	Y
MEPNA (MOBIL	43-037-15737	18W34	41S	24E	18	INJW	Y
MEPNA (MOBIL	43-037-15736	18W32	41S	24E	18	INJW	Y
MEPNA (MOBIL	43-037-30244	18W23	41S	24E	18	INJW	Y
MEPNA (MOBIL	43-037-15735	18W14	41S	24E	18	INJW	Y
MEPNA (MOBIL	43-037-16418	18W21	41S	24E	18	INJW	Y
MEPNA (MOBIL	43-037-15738	18W41	41S	24E	18	INJW	Y
MEPNA (MOBIL	43-037-15741	19W21	41S	24E	19	INJW	Y
MEPNA (MOBIL	43-037-15742	19W23	41S	24E	19	INJW	Y
MEPNA (MOBIL	43-037-15745	19W41	41S	24E	19	INJW	Y
MEPNA (MOBIL	43-037-16420	19W43	41S	24E	19	INJW	Y
MEPNA (MOBIL	43-037-15748	20W23	41S	24E	20	INJW	Y
MEPNA (MOBIL	43-037-15751	20W41	41S	24E	20	INJW	Y
MEPNA (MOBIL	43-037-16423	20W21	41S	24E	20	INJW	Y
MEPNA (MOBIL	43-037-16424	20W43	41S	24E	20	INJW	Y
MEPNA (MOBIL	43-037-16427	21W43	41S	24E	21	INJW	Y
MEPNA (MOBIL	43-037-16425	21W21	41S	24E	21	INJW	Y
MEPNA (MOBIL	43-037-16431	28W21	41S	24E	28	INJI	Y
MEPNA (MOBIL	43-037-16433	29W41	41S	24E	29	INJW	Y
MEPNA (MOBIL	43-037-16432	29W21	41S	24E	29	INJW	Y
MEPNA (MOBIL	43-037-15338	29W23	41S	24E	29	INJI	Y
MEPNA (MOBIL	43-037-16434	29W43	41S	24E	29	INJW	Y
MEPNA (MOBIL	43-037-15343	30-41	41S	24E	30	INJW	Y
MEPNA (MOBIL	43-037-16435	30W21	41S	24E	30	INJI	--

Division of Oil, Gas and Mining
OPERATOR CHANGE WORKSHEET

Routing:
1-LEC 7-PL
2-LWP 8-SJ
3-~~DTS~~ 9-FILE
4-VLC
5-RJF
6-LWP

Attach all documentation received by the division regarding this change.
Initial each listed item when completed. Write N/A if item is not applicable.

☐ Change of Operator (well sold) ☐ Designation of Agent
☐ Designation of Operator XXX Operator Name Change Only

The operator of the well(s) listed below has changed (EFFECTIVE DATE: **8-2-95**)

TO (new operator) **MOBIL EXPLOR & PROD**	FROM (former operator) **M E P N A**
(address) **C/O MOBIL OIL CORP**	(address) **C/O MOBIL OIL CORP**
PO DRAWER G	**PO DRAWER G**
CORTEZ CO 81321	**CORTEZ CO 81321**
phone **(303) 564-5212**	phone **(303)564-5212**
account no. **N7370**	account no. **N7370**

Well(s) (attach additional page if needed):

Name: **** SEE ATTACHED ****	API: 037-15722	Entity:	Sec	Twp	Rng	Lease Type:
Name:	API:	Entity:	Sec	Twp	Rng	Lease Type:
Name:	API:	Entity:	Sec	Twp	Rng	Lease Type:
Name:	API:	Entity:	Sec	Twp	Rng	Lease Type:
Name:	API:	Entity:	Sec	Twp	Rng	Lease Type:
Name:	API:	Entity:	Sec	Twp	Rng	Lease Type:
Name:	API:	Entity:	Sec	Twp	Rng	Lease Type:

OPERATOR CHANGE DOCUMENTATION

N/A 1. (Rule R615-8-10) Sundry or other legal documentation has been received from former operator (Attach to this form).

N/A 2. (Rule R615-8-10) Sundry or other legal documentation has been received from new operator (Attach to this form).

N/A 3. The Department of Commerce has been contacted if the new operator above is not currently operating any wells in Utah. Is company registered with the state? (yes/no) ____ If yes, show company file number: ____.

N/A 4. **(For Indian and Federal Hells ONLY)** The BLM has been contacted regarding this change (attach Telephone Documentation Form to this report). Make note of BLM status in comments section of this form. Management review of **Federal and Indian** well operator changes should take place prior to completion of steps 5 through 9 below.

Lec 5. Changes have been entered in the Oil and Gas Information System (Wang/IBM) for each well listed above. (8-3-95)

LWP 6. Cardex file has been updated for each well listed above. 8-31-95

LWP 7. Well file labels have been updated for each well listed above. 9-28-95

Lec 8. Changes have been included on the monthly "Operator, Address, and Account Changes" memo for distribution to State Lands and the Tax Commission. (8-3-95)

Lec 9. A folder has been set up for the Operator Change file, and a copy of this page has been placed there for reference during routing and processing of the original documents.

– OVER –

OPERATOR CHANGE WORKSHEET (CONTINUED) Initial each item when completed. Write N/A if item is not applicable.

ENTITY REVIEW

Lec 1. (Rule R615-8-7) Entity assignments have been reviewed for all wells listed above. Were entity changes made? (yes/no) ___ (If entity assignments were changed, attach copies of Form 6, Entity Action Form).

N/A 2. State Lands and the Tax Commission have been notified through normal procedures of entity changes.

BOND VERIFICATION (Fee wells only) * No Fee Lease Wells at this time!

N/A/Lec 1. (Rule R615-3-1) The new operator of any fee lease well listed above has furnished a proper bond.

___ 2. A copy of this form has been placed in the new and former operators' bond files.

___ 3. The former operator has requested a release of liability from their bond (yes/no) ___. Today's date _____ 19___. If yes, division response was made by letter dated _____ 19___.

LEASE INTEREST OWNER NOTIFICATION RESPONSIBILITY

N/A 1. (Rule R615-2-10) The former operator/lessee of any **fee lease** well listed above has been notified by letter dated _____ 19___, of their responsibility to notify any person with an interest in such lease of the change of operator. Documentation of such notification has been requested.
UTS
8/5-F5

N/A 2. Copies of documents have been sent to State Lands for changes involving **State leases.**

FILMING

✓ 1. All attachments to this form have been microfilmed. Date: October 4 19 95.

FILING

___ 1. Copies of all attachments to this form have been filed in each well file.

___ 2. The original of this form and the original attachments have been filed in the Operator Change file.

COMMENTS

950803 UIC F5/Not necessary!

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT - " for such proposals

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.: 14-20-603-355
6. If Indian, Allottee or Tribe Name: NAVAJO TRIBAL
7. If Unit or CA, Agreement Designation: RATHERFORD UNIT
8. Well Name and No.: RATHERFORD 16-W-23
9. API Well No.: 43-037-15722
10. Field and Pool, or exploratory Area: GREATER ANETH
11. County or Parish, State: SAN JUAN UT

1. Type of Well: [ ] Oil Well [ ] Gas Well [X] Other
2. Name of Operator: MOBIL PRODUCING TX & NM INC.*
*MOBIL EXPLORATION & PRODUCING US INC. AS AGENT FOR MPTM
3. Address and Telephone No.: P.O. Box 633, Midland TX 79702 (915) 688-2585
4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
SEC. 16, T41S, R24E
(NE/SW) 1980' FSL & 1980' FWL

12. CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION	
[X] Notice of Intent	[ ] Abandonment	[ ] Change of Plans
[ ] Subsequent Report	[ ] Recompletion	[ ] New Construction
[ ] Final Abandonment Notice	[ ] Plugging Back	[ ] Non-Routine Fracturing
	[ ] Casing Repair	[ ] Water Shut-Off
	[ ] Altering Casing	[ ] Conversion to Injection
	[X] Other INJECTOR/SIDETRACK	[ ] Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

BHL:

379 353
LATERAL #1: 1243' NORTH & 1159' WEST FROM SURFACE SPOT (ZONE 1a).
LATERAL #2: 1137' SOUTH & 1263' EAST FROM SURFACE SPOT (ZONE 1a).
347 385

SEE ATTACHED PROCEDURE.

RECEIVED
JUN 02 1998
DIV. OF OIL, GAS & MINING

14. I hereby certify that the foregoing is true and correct
Signed Sue Moseley for Title SHIRLEY HOUCHINS/ENV & REG TECH Date 5-28-98

(This space for Federal or State office use)
Approved by Title BRADLEY G. HILL RECLAMATION SPECIALIST III Date 6/4/98
Conditions of approval, if any:
Federal Approval of this Action is Necessary

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

* See Instruction on Reverse Side

Ratherford Unit Well #16-23
Horizontal Drilling Procedure

The objective of this procedure is to prepare this wellbore for sidetracking, sidetrack the subject well and drill multilateral short radius horizontal laterals (1500-1700 feet).

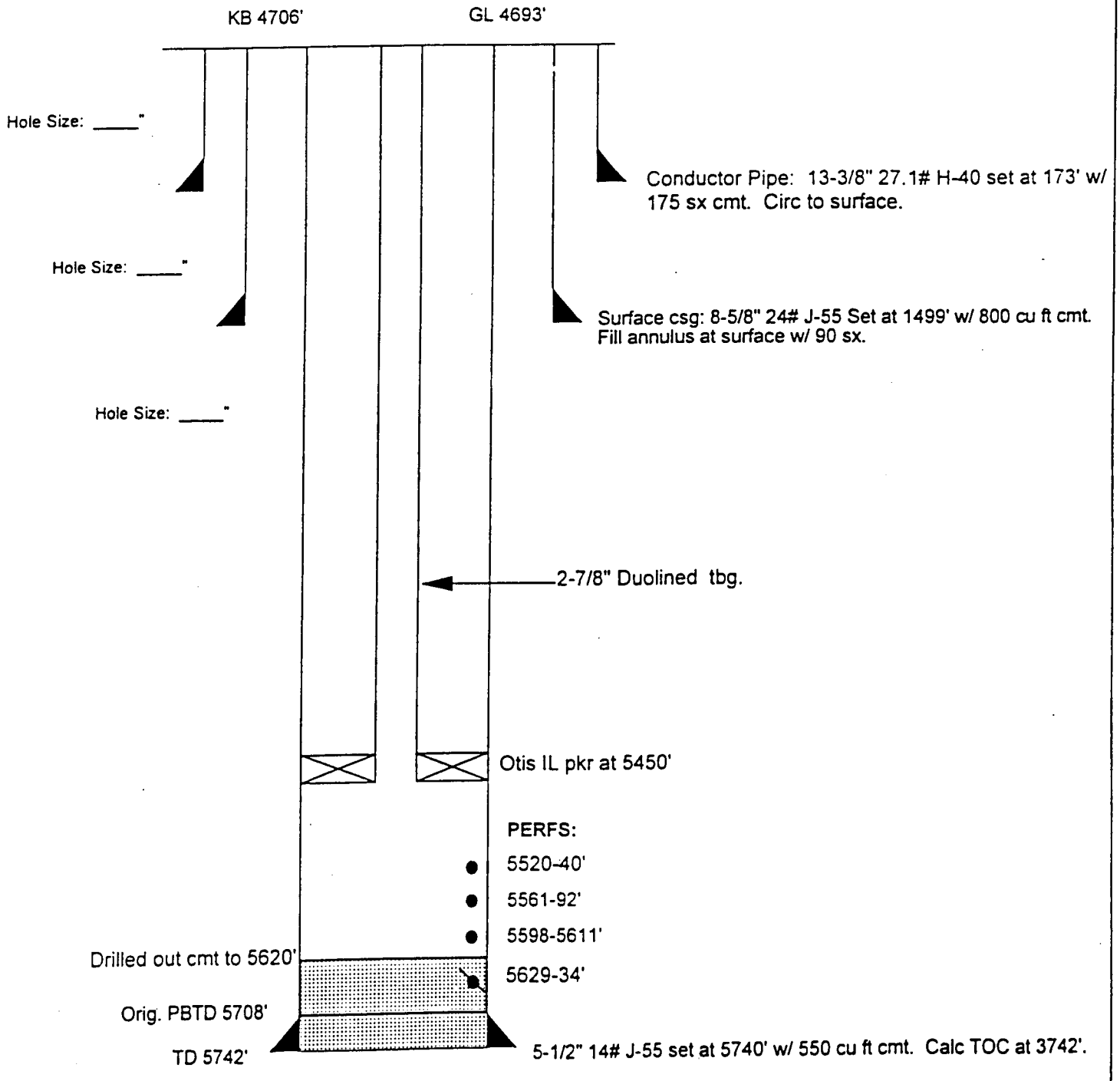
1. Prepare location and dig working pit.
2. MIRU WSU, reverse unit, and H2S equipment. Bullhead kill weight fluid down tubing.
3. ND wellhead and NU BOP's. Pressure test BOP's to working pressure.
4. Continue to POH with related equipment (tubing and rods for producers or tubing and packer for injectors).
5. RU wireline to run any logs desired and run gage ring for casing size and weight.
6. Set retrievable bridge plug at 5200' and pressure test casing to 1000 psi.
7. RDMO WSU.
8. MIRU 24 hr. WSU. NU BOP's and pressure test with chart.
9. PU tubing, drilling collars, and drill pipe in derrick and run in hole. Then POH and stand back.
10. Run packer on wireline and set using GR/CCL log to correlate with. RD wireline.
11. PU drillpipe with UBHO sub in string and latch into packer to survey the hole and obtain orientation of keyway. POH w/gyro and drill string.
12. Orient whipstock on surface to desired bearing and RIH on drill pipe. Latch into packer. Shear starter mill bolt and make starter cut.
13. POH w/ starter mill and pick up window mill and watermelon mill and continue to mill window. Drill 1-2 ft of formation
14. POH w/ mills and PU curve building assembly and drill string with UBHO sub in string and RIH.
15. RU gyro to assist in time drilling and starting out of the casing window. POH w/ gyro when inclination dictates it must be pulled.
16. Finish drilling the curve using the MWD.
17. POH once curve is finished and PU lateral motor to drill the lateral using MWD.
18. Once lateral TD is reached, POH w/ directional equipment.
19. PU retrieving hook and RIH on drill pipe. Retrieve whipstock and PU new whipstock oriented for desired bearing to start in hole.
20. Repeat steps 12 through 19 for each subsequent lateral.

RATHERFORD UNIT # 16W-23

GREATER ANETH FIELD
1980' FSL & 1980' FWL
SEC 16-T41S-R24E
SAN JUAN COUNTY, UTAH
API 43-037-15722
PRISM 0043040

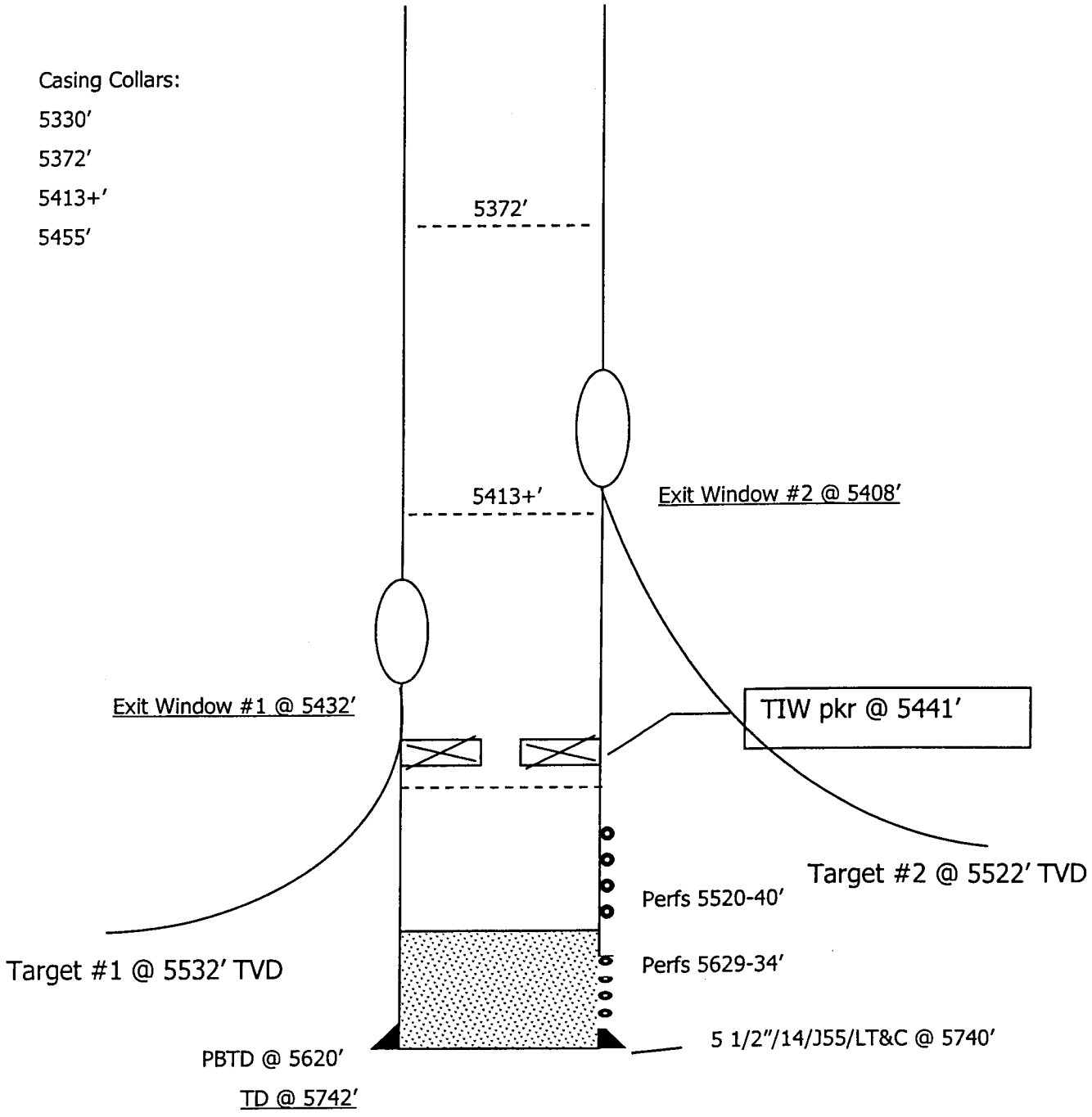
INJECTOR

Capacities:	bbl/ft	gal/ft	cuft/ft
2-7/8" 6.5#	.00579	.2431	.0325
5-1/2" 14#	.0244	1.0249	.1370
2-7/8x5.5"14#	.0164	.6877	.0919



L. A. TUCKER 6-3-96 R.U. # 16W-23

Ratherford Unit #16-23



Window	Btm-Top of Window	Ext length	Curve Radius	Bearing	Horiz Displ
1	5432-26	-------	100	317	1700
2	5408-5400	24	114	132	1700

The double spline is 2.42 ft long and the bottom of the whipstock, the latch, the debris and the shear sub are 8.68 ft long. These lengths must be added to the extension lengths to determine the entire whipstock assembly length.

WORKSHEET
APPLICATION FOR PERMIT TO DRILL

APD RECEIVED: 06/02/98

API NO. ASSIGNED: 43-037-15722

WELL NAME: RU 16-W-23 MULTI-LEG
OPERATOR: MOBIL EXPL & PROD (N7370)
CONTACT: _____

PROPOSED LOCATION:
NESW 16 - T41S - R24E
SURFACE: 1980-FSL-1980-FWL
BOTTOM: 2662-FSL-0919-FWL
SAN JUAN COUNTY
GREATER ANETH FIELD (365)

LEASE TYPE: IND
LEASE NUMBER: 14-20-603-355
SURFACE OWNER: _____

PROPOSED FORMATION: DSCR

INSPECT LOCATION BY: / /		
TECH REVIEW	Initials	Date
Engineering		
Geology		
Surface		

RECEIVED AND/OR REVIEWED:

✓ Plat
✓ Bond: Federal [✓] State[] Fee[]
(No. ALREADY EXISTS)
N Potash (Y/N)
N Oil Shale (Y/N) *190-5(B)
✓ Water Permit
(No. NAVAJO ALLOCATION)
N RDCC Review (Y/N)
(Date: _____)

✓ St/Fee Surf Agreement (Y/N)

LOCATION AND SITING:

✓ R649-2-3. Unit RATHERFORD

___ R649-3-2. General

___ R649-3-3. Exception

___ Drilling Unit
Board Cause No: _____
Date: _____

COMMENTS: _____

STIPULATIONS: (1) FEDERAL APPROVAL
(2) Directional drilling

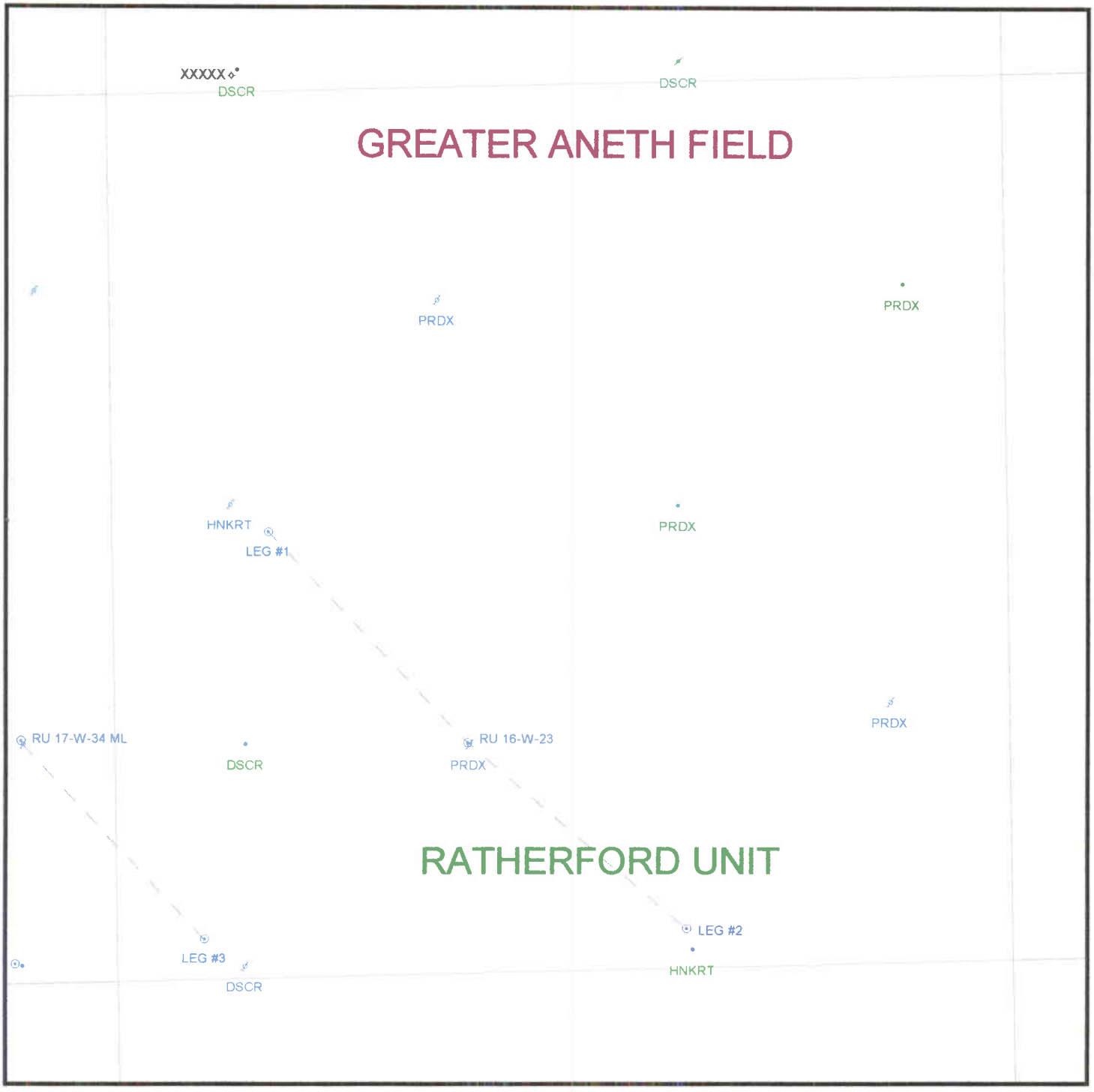
DIVISION OF OIL, GAS & MINING

OPERATOR: MOBIL EXPL & PROD (N7370)

FIELD: GREATER ANETH□ (365)

SEC. , 16 TWP 41S, □□ RNG 24E

COUNTY: SAN JUAN UAC: R649-2-3 RATHERFORD UNIT



DATE PREPARED:
-JUNE-1998

Michael O. Leavitt
Governor
Ted Stewart
Executive Director
Lowell P. Braxton
Division Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, Utah 84114-5801
801-538-5340
801-359-3940 (Fax)
801-538-7223 (TDD)

June 4, 1998

Mobil Exploration & Producing
P.O. Box 633
Midland, TX 79702

Re: Ratherford 16-W-23, 1980' FSL, 1980' FWL, NE SW, Sec. 16, T. 41 S., R. 24 E., San Juan County, Utah

Gentlemen:

Pursuant to the provisions and requirements of Utah Code Ann. 40-6-1 et seq., Utah Administrative Code R649-3-1 et seq., and the attached Conditions of Approval, approval to drill the referenced well is granted.

This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date. The API identification number assigned to this well is 43-037-15722.

Sincerely,

John R. Baza
Associate Director

lwp
Enclosures
cc: San Juan County Assessor
Bureau of Land Management, Moab District Office

Operator: Mobil Exploration & Producing

Well Name & Number: Ratherford 16-W-23

API Number: 43-037-15722

Lease: 14-20-603-355

Location: NE SW **Sec.** 16 **T.** 41 S. **R.** 24 E.

Conditions of Approval

1. General
   Compliance with the requirements of Utah Admin. R. 649-1 et seq., the Oil and Gas Conservation General Rules, and the applicable terms and provisions of the approved Application for Permit to Drill.

2. Notification Requirements
   Notify the Division within 24 hours prior to spudding the well or commencing drilling operations. Contact Jim Thompson at (801)538-5336.

   Notify the Division prior to commencing operations to plug and abandon the well. Contact Dan Jarvis at (801) 538-5338 or Robert Krueger at (801) 538-5274.

3. Reporting Requirements
   All required reports, forms and submittals shall be promptly filed with the Division, including but not limited to the Entity Action Form (Form 6), Report of Water Encountered During Drilling (Form 7), Weekly Progress Reports for drilling and completion operations, and Sundry Notices and Reports on Wells requesting approval of change of plans or other operational actions.

4. State approval of this well does not supercede the required federal approval which must be obtained prior to drilling.

5. In accordance with Utah Admin. R.649-3-11, Directional Drilling, submittal of a complete angular deviation and directional drilling survey report is required.

DIVISION OF OIL, GAS AND MINING

SPUDDING INFORMATION

Name of Company: MOBIL E & P

Well Name: RATHERFORD UNIT 16-23

Api No. 43-037-15722

Section 16 Township 41S Range 24E County SAN JUAN

Drilling Contractor BIG "A"

Rig # 25

SPUDDED:

Date 7/13/98

Time

How ROTARY

Drilling will commence

Reported by BENNIE BRIGGS

Telephone #

Date: 7/13/98 Signed: JLT

Pason

ROCKY MOUNTAIN GEO-ENGINEERING

Electronic Rig Monitoring Systems • Well Logging • Consulting Geology • Coal Bed Methane Services

PASON ROCKY MOUNTAIN GEO-ENGINEERING CORP.

2450 INDUSTRIAL BLVD. • GRAND JUNCTION, CO 81505

(970) 243-3044 • (FAX) 241-1085

Friday, August 07, 1998

Division of Oil & Gas Mining
State of Utah
1594 West North Temple
3 Triad Center, Ste. 1210
Salt Lake City, UT 84116

43-037-15732

Re: Ratherford Unit #16-23 , Legs 1 & 2
Sec. ~~17~~ 16, T41S, R24E
San Juan County, Utah

Dear Sirs:

Enclosed is the final computer colored log and geology report for the above referenced well.

IN 206 FILE

We appreciate the opportunity to be of service to you and look forward to working with you again in the near future.

If you have any questions regarding the enclosed data, please contact us.

Sincerely,

Bill Nagel

Bill Nagel
Senior Geologist

BN/dn

Enc. 1 Final Computer Colored Log and Geology Report For Each Leg

cc Letter Only; Dana Larson; Mobil E & P U.S., Inc.; Midland, TX

MOBIL

RATHERFORD UNIT #16-23
NW HORIZONTAL LATERAL LEG #1
UPPER 1-A POROSITY BENCH
DESERT CREEK MEMBER
PARADOX FORMATION
SECTION 16, T41S, R24E
SAN JUAN, UTAH

GEOLOGY REPORT
by
DAVE MEADE & LUKE TITUS
PASON/ROCKY MOUNTAIN GEO-ENGINEERING CORP.
GRAND JUNCTION, COLORADO
(970) 243-3044

TABLE OF CONTENTS

WELL SUMMARY

OPERATOR:	MOBIL EXPLORATION & PRODUCTION U.S. INC.
NAME:	RATHERFORD UNIT #16-23 NW HORIZONTAL LATERAL LEG #1 IN 1-A UPPER POROSITY BENCH, DESERT CREEK
LOCATION:	SECTION 16, T41S, R24E
COUNTY/STATE:	SAN JUAN, UTAH
ELEVATION:	KB:4706' GL:4693'
SPUD DATE:	7/13/98
COMPLETION DATE:	7/XX/98
DRILLING ENGINEER:	BENNY BRIGGS / SIMON BARRERA
WELLSITE GEOLOGY:	DAVE MEADE / LUKE TITUS
MUDLOGGING ENGINEERS:	DAVE MEADE / LUKE TITUS
CONTRACTOR:	BIG "A" RIG 25
TOOLPUSHER:	J. DEES
HOLE SIZE:	4 ¾"
CASING RECORD:	SIDETRACK IN WINDOW AT 5424' MEASURED DEPTH
DRILLING MUD:	M-I
ENGINEER:	DANE BEASON/RON WESTENBERGE
MUD TYPE:	FRESH WATER & BRINE WATER W/ POLYMER SWEEPS
DIRECTIONAL DRILLING CO:	SPERRY-SUN
ELECTICAL LOGGING:	NA
TOTAL DEPTH:	7125' MEASURED DEPTH; TRUE VERTICAL DEPTH-5521'
STATUS:	TOH & LAY DOWN TOOLS – PREPARE WELL FOR SE LEG #2

DRILLING CHRONOLOGY
RATHERFORD UNIT #16-23
1-A NW HORIZONTAL LATERAL LEG #1

DATE	DEPTH	DAILY	ACTIVITY
7/12/98	0'	0'	RIG DOWN
7/13/98	0'	0'	RIG DOWN & MOVE RIG TO R.U. 16-23 LOCATION-RIG UP-NIPPLE UP-PRESSURE TEST BOP & CHOKE-RIG UP
7/14/98	5433'	0'	M.U. RETRIEVING TOOL-P.U. 20 DRL COLLARS & 152 JTS AOH-TIH-LATCH ON TO BRIDGE PLUG-TOOH-L.D. BRIDGE PLUG- CHECK FLOW (WELL FLOWING 20-30 BBL/HR)-TOH-R.U. WIRE LINE-RUN IN & SET PACKER @ 5433'-R. D. WIRE LINE-TOH-P.U. ANCHOR LATCH & UBHO-TIH-PUMP BRINE-STING IN TO PACKER W/ LATCH ASSEM.–RIG UP GYRO DATA & RUN GYRO-ORIENT ANCHOR & SHEAR OFF-TOH-L.D. ANCHOR LATCH ASSEM.-P.U. WHIPSTOCK & ORIENT-TIH W/WHIPSTOCK & STARTER MILL
7/15/98	5418'	8'	TIH W/WHIPSTOCK-CIRC. (50 ppm H_2S)-MILL W/STARTER MILL 5418'-5420'-PUMP 20 BBLS BRINE-TOH-L.D. STARTER MILL-P.U. WINDOW & WATERMELLON MILLS-TIH-MILL 5418'-5424'-PUMP SWEEP & CIR OUT-PUMP 30 BBLS BRINE-TOH-L.D. MILLS-P.U. CURVE ASSEMBLY-TEST MWD & MUD MTR- TIH-P.U. PH-6-TIH-CIR & CLEAN PIPE- RIG UP GYRODATA & RUN GYRO-TIME DRLG FROM 5424'-5426'
7/16/98	5426'	152'	TIME DRLG FROM 5426'-5427'- DIR DRLG W/WIRELINE SURVEYS FROM 5427'-5452'-PULL GYRO & R.D. GYRO DATA-DIR DRLG & SURVEYS TO 5578' (TD OF CURVE)-PUMP SWEEP & CIR. OUT SPLS-L.D. 52 JTS AOH PIPE-TOH-L.D. CURVE ASSEMBLY-P.U. LATERAL BHA W/BIT #2 & TEST MWD / MUD MOTOR-TIH
7/17/98	5578'	924'	TIH-DIR DRLG & SURVEYS
7/18/98	6502'	623'	DIR DRLG & SURVEYS TO 7125'-PUMP SWEEP & CIR OUT SPLS-TOH-L.D. LATERAL ASSEMBLY-P.U. RETRIEVING HOOK-TIH-P.U. 10 JTS AOH-LATCH INTO WHIPSTOCK #1-T0H
7/19/98	7125'	TD	SEE LEG #2 GEO-REPORT

DAILY ACTIVITY

Operator: MOBIL
Well Name: RATHERFORD UNIT #16-23 NW 1-A HORIZONTAL LATERAL LEG #1

DATE	DEPTH	DAILY	DATE	DEPTH	DAILY
7/12/98	0'	0'			
7/13/98	0'	0'			
7/14/98	5433'	0'			
7/15/98	5418'	8'			
7/16/98	5426'	152'			
7/17/98	5578'	924'			
7/18/98	6502'	623'			
7/19/98	7125'	TD			

BIT RECORD

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #16-23 NW 1-A HORIZONTAL LATERAL LEG #1

RUN	SIZE	MAKE	TYPE	IN/OUT	FTG	HRS	FT/HR
#1 (RR)	4 3/4"	STC	MF-3P	5424'/ 5578'	154'	16.5	9.3
#2	4 3/4"	STC	MF-2GP	5578'/ 7125'	1547'	36	43

MUD REPORT

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #16-23 NW 1-A HORIZONTAL LATERAL LEG #1

DATE	DEPTH	WT	VIS	PLS	YLD	GEL	PH	WL	CK	CHL	CA	SD	OIL	WTR
7/12/98	0'	NO	CHECK	–	–	–	–	–	–	–	–	–	–	–
7/13/98	0'	NO	CHECK	–	–	–	–	–	–	–	–	–	–	–
7/14/98	5433'	NO	CHECK	–	–	–	–	–	–	–	–	–	–	–
7/15/98	5421'	8.5	26	1	1	0/0	8.0	NC	NC	12500	320	1	0%	99%
7/16/98	5473'	8.8	26	1	1	0/0	11.0	NC	NC	40000	4000	1	0%	99%
7/17/98	5765'	8.8	26	1	0	0/0	11.0	NC	NC	45000	4800	1	0%	99%
7/18/98	6759'	8.8	26	1	0	0/0	11.0	NC	NC	45000	5200	1	0%	99%

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/16-23 1A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
5400.00	0.80	270.92	5399.38	28.98 N	56.63 W	59.82	0.00
5418.00	0.57	275.38	5417.38	28.99 N	56.85 W	59.97	1.31
5424.00	2.80	317.00	5423.38	29.10 N	56.98 W	60.14	40.06
5434.00	7.70	328.40	5433.33	29.85 N	57.49 W	61.04	49.86
5444.00	12.90	330.70	5443.17	31.40 N	58.39 W	62.78	52.15
5454.00	18.60	331.80	5452.79	33.78 N	59.69 W	65.41	57.08
5464.00	24.60	332.30	5462.08	37.03 N	61.42 W	68.97	60.03
5474.00	30.70	332.70	5470.93	41.14 N	63.56 W	73.44	61.03
5484.00	37.00	334.60	5479.24	46.14 N	66.02 W	78.77	63.88
5494.00	41.30	330.40	5486.99	51.73 N	68.94 W	84.85	50.50
5504.00	45.30	336.00	5494.27	57.85 N	72.02 W	91.42	55.42
5514.00	51.00	335.40	5500.94	64.63 N	75.09 W	98.48	57.17
5524.00	56.90	334.00	5506.82	71.94 N	78.54 W	106.18	60.07
5534.00	63.50	333.40	5511.79	79.71 N	82.39 W	114.48	66.20
5544.00	69.80	333.40	5515.75	87.92 N	86.50 W	123.29	63.00
5578.00	87.50	329.80	5522.42	117.10 N	102.31 W	155.42	53.07
5619.00	88.50	324.70	5523.85	151.55 N	124.47 W	195.73	12.67
5651.00	89.70	321.00	5524.35	177.05 N	143.79 W	227.55	12.15
5683.00	89.70	320.20	5524.52	201.78 N	164.10 W	259.49	2.50
5715.00	90.60	320.90	5524.43	226.49 N	184.43 W	291.43	3.56
5746.00	89.80	321.20	5524.33	250.59 N	203.92 W	322.35	2.76
5778.00	88.00	320.20	5524.94	275.35 N	224.19 W	354.27	6.43
5810.00	89.60	319.60	5525.61	299.82 N	244.79 W	386.22	5.34
5841.00	89.10	318.40	5525.96	323.22 N	265.13 W	417.20	4.19
5873.00	91.00	318.70	5525.93	347.20 N	286.31 W	449.19	6.01
5905.00	92.60	319.80	5524.93	371.43 N	307.19 W	481.15	6.07
5937.00	91.80	318.60	5523.70	395.63 N	328.08 W	513.10	4.50
5969.00	89.10	317.70	5523.45	419.47 N	349.43 W	545.09	8.89
6000.00	89.20	318.20	5523.91	442.48 N	370.19 W	576.08	1.64
6031.00	91.10	318.70	5523.83	465.68 N	390.75 W	607.07	6.34
6063.00	91.80	318.70	5523.02	489.72 N	411.86 W	639.05	2.19
6095.00	90.40	317.30	5522.40	513.49 N	433.27 W	671.03	6.19
6127.00	88.60	315.20	5522.68	536.60 N	455.40 W	703.03	8.64
6158.00	88.20	315.10	5523.55	558.57 N	477.25 W	734.00	1.33
6190.00	86.00	314.90	5525.17	581.17 N	499.85 W	765.93	6.90
6222.00	91.70	316.60	5525.81	604.08 N	522.16 W	797.91	18.59
6254.00	90.80	317.20	5525.11	627.44 N	544.02 W	829.90	3.38
6286.00	89.20	315.90	5525.11	650.67 N	566.03 W	861.90	6.44

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/16-23 1A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET	EASTINGS FEET	VERTICAL SECTION	DOG LEG
6317.00	90.60	315.90	5525.16	672.93 N	587.60 W	892.89	4.52
6349.00	88.20	314.70	5525.50	695.67 N	610.10 W	924.87	8.39
6381.00	91.10	315.90	5525.69	718.41 N	632.61 W	956.85	9.81
6413.00	90.40	315.90	5525.28	741.39 N	654.88 W	988.84	2.19
6444.00	88.20	315.20	5525.65	763.52 N	676.58 W	1019.83	7.45
6476.00	90.40	314.40	5526.05	786.06 N	699.29 W	1051.80	7.32
6508.00	89.60	315.10	5526.05	808.59 N	722.01 W	1083.78	3.32
6539.00	90.40	315.40	5526.05	830.60 N	743.84 W	1114.76	2.76
6571.00	88.80	315.40	5526.27	853.39 N	766.30 W	1146.75	5.00
6603.00	87.00	314.70	5527.44	876.02 N	788.89 W	1178.70	6.03
6635.00	91.00	315.10	5528.00	898.60 N	811.55 W	1210.67	12.56
6666.00	87.80	314.90	5528.33	920.52 N	833.47 W	1241.65	10.34
6698.00	88.50	314.70	5529.36	943.05 N	856.16 W	1273.61	2.27
6730.00	91.90	316.30	5529.25	965.87 N	878.59 W	1305.59	11.74
6762.00	92.90	316.50	5527.91	989.02 N	900.64 W	1337.56	3.19
6794.00	93.60	317.30	5526.09	1012.35 N	922.47 W	1369.51	3.32
6826.00	92.30	317.20	5524.45	1035.82 N	944.16 W	1401.46	4.07
6856.00	89.90	317.00	5523.87	1057.79 N	964.57 W	1431.46	8.03
6888.00	90.00	317.70	5523.90	1081.33 N	986.26 W	1463.46	2.21
6921.00	90.00	318.20	5523.90	1105.83 N	1008.36 W	1496.45	1.52
6953.00	90.20	319.50	5523.84	1129.92 N	1029.41 W	1528.43	4.11
6985.00	89.80	319.30	5523.84	1154.22 N	1050.24 W	1560.41	1.40
7017.00	90.20	319.30	5523.84	1178.48 N	1071.11 W	1592.38	1.25
7048.00	92.10	320.30	5523.22	1202.15 N	1091.11 W	1623.33	6.93
7091.00	91.80	319.80	5521.76	1235.10 N	1118.71 W	1666.25	1.36
7125.00	91.80	319.80	5520.69	1261.05 N	1140.64 W	1700.19	0.00

THE DOGLEG SEVERITY IS IN DEGREES PER 100.00 FEET.
N/E COORDINATE VALUES GIVEN RELATIVE TO WELL HEAD.
TVD COORDINATE VALUES GIVEN RELATIVE TO WELL HEAD.
THE VERTICAL SECTION ORIGIN IS WELL HEAD.
THE VERTICAL SECTION WAS COMPUTED ALONG 317.00 (TRUE).
CALCULATION METHOD: MINIMUM CURVATURE.

7125 EXTRAPOLATED TO THE BIT

SAMPLE DESCRIPTIONS

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #16-23 NW 1-A HORIZONTAL LATERAL

DEPTH	LITHOLOGY

5424.00 5430.00 "LS dkbrn,brn,occ ltbrn-crm-ltgybrn,crypt-mic xl,dns-tt mtx,rr sl slty,rr mrly prtgs,occ sl plty,rthy,tr dkbrn-brn CHT frgs,tt xln POR,NFSOC"

5430.00 5440.00 "LS AA,crm-tan,vf xl,mdns-dns-tr tt mtx,occ sft-rthy,tr CHT AA,v-sl dolo,arg,rr blk SH prtgs,occ mrly,g-fst dif strmg CUT,tr-intrxln-rthy POR,p-tr brn o STN spty blk dd o STN"

5440.00 5450.00 "LS tan-brn,occ crm-ltbrn,crpxl-micxl,chk-cln,mrly,sl slty,rr mic fos,sl dol,rr anhy-v rr ANHY xl,tt-v rr intxl POR,n-v rr dull yel FLOR,n vis STN,v p slow dif CUT,w/thn DOL dkbrn-brn micxl rthy lmy mrly tt,NFSOC & SH blk-dkgy sbplty mica sl carb lmy-dol"

5450.00 5470.00 "LS crm-tan,occ ltbrn-brn,crpxl-micxl,rthy-chk,occ cln-dns,v sl slty,dol,v sl mrly,tt,NFSOC,rr brn-dkbrn CHT frag,tr intbd thn DOL mbrn-gybrn micxl-crpxl rthy-arg lmy mrly ip tt-v rr intxl POR NFSOC,w/blk-dkgy sbplty SH calc-dol mica sl slty carb ptgs"

5470.00 5480.00 "LS AA,incr mrly ip,pred crm-wh cln,w/intbd arg brn-dkbrn DOL AA,scat thn SH ptgs & rr trnsl-ltgy-brn CHT frag"
5480.00 5500.00 "LS crm-tan,occ brn,crpxl-micxl,rthy-chk,cln-dns ip,sl-v slty,occ grdg to lmy SLTST ip,sl dol,mrly,tt,NFSOC,rr trnsl-brn CHT frag,tr v thn DOL brn-gybrn micxl-crpxl rthy-arg lmy mrly ip tt NFSOC,w/v rr blk-dkgy calc-dol mica sl slty carb SH ptgs"

5500.00 5510.00 "LS AA,rthy-cln,sl anhy,decr slty,rr mic fos,tt-v rr intxl POR,rr spty dull yel FLOR,n vis STN,n-v p slow dif-resid ring CUT,scat v thn DOL ptg AA,incr mrly,rr brn CHT frag-v rr blk SH lams"

5510.00 5520.00 "LS crm-wh,occ ltbrn-ltgy,crpxl-micxl,rthy-chk,cln-dns ip,rr mic fos,sl dol-anhy,v sl slty,tt-v rr intxl POR,tr FLOR AA,STN-CUT AA,v rr DOL ltbrn-brn,micxl-crpxl,cln-rthy,lmy ip,occ arg-mrly,rr mic fos,tt,NFSOC,bcmg blk sl calc-dol carb SH,v rr CHT frag "

5520.00 5530.00 "SH blk-dkgy,sbblky,sft,sl slty-mica,calc-sl dol carb-sooty,w/v rr scat dns-chk crm LS & m-dkgybrn rthy mrly DOL lams"

5530.00 5550.00 "SH AA,bcmg pred LS crm-tan-ltbrn,crpxl-micxl,cln-dns,rthy-chk ip,dol,v rr mic fos,tt-v rr intxl POR,NFSOC,w/v intbd DOL brn-mbrn,micxl-crpxl,rthy,lmy,rr mic-Crin fos,sl arg-mrly,tt,NFSOC,rr trnsl CHT frag"

DEPTH	LITHOLOGY

5550.00 5560.00 "LS tan-crm,rr wh-ltbrn,crpxl-vfxl,rr gran-micsuc,sl ool dns PKST,bcmg pred ooc-oom sl alg GRNST,v sl dol,sl anhy-rr ANHY xl-POR fl,tt-mg ool-fr intxl-rr alg POR,tr-mfr dull-bri yel FLOR,mfr ltbrn-rr blk STN,fr slow dif-tr mod fast CUT,rr SH-scat DOL AA"

5560.00 5578.00 "LS tan-brn,occ crm-rr wh,micxl-vfxl,gran-suc,pred v sl ooc alg GRNST,scat dns-chk PKST,sl anhy-v rr ANHY xl,occ DOL cmt,fr-g intxl-mfr alg-rr ool POR,fr dull yel FLOR,fr-mg ltbrn STN,tr blk dd o STN,mg slow-mfr mod fast stmg mlky CUT,w/rr blk SH CVGS"

5578.00 5590.00 "LS,crm-tan,occ brn,mic-vf xl,grn-suc mtx,tr mdns-dns mtx,pred sl ooc alg GRNST,tr dns sl chlky sl plty PKST,sl dolo,tr chlky mat,rr anhy xls,pred fr-g intrxl-suc fab POR,f-dull yelgld FLOR,f-fst strmg CUT,tr blk dd o STN,mfr-fr ltbrn o STN"

5590.00 5610.00 "LS AA,crm-tan,mic-vf xl,pred suc-grn mtx w/sme scat mdns mtx,v sl/dolo,pred occ v sl ool suc agl GRNST,rr dns sl chlky dns PCKST,rr ooc/oom GRNST,m slo strm CUT,dul-mbi yel FLOR,spty blk dd o STN,mf-f brn-ltbrn o STN"

5610.00 5630.00 "LS,tan-crm-ltbrn,mic-vf xl,rr crypt xl,suc-microsuc-grn mtx,pred sl occ vug suc alg GRNST,tr dkbrn-brn sl plty dns PKST,sl anhy,vsl dol,tr anhy/ofwht chlky mat;pred suc-vug to g-intrxl w/sme v/scat oom/ooc fab POR,FLOR AA,o STN AA"

5630.00 5650.00 "LS tan-brn,occ crm-rr wh,crpxl-vfxl,gran-micsuc ip,intbd v sl ooc alg GRNST & dns v sl ool occ chk-plty PKST,scat ANHY xl,v sl DOL cmt,tt-mfr intxl-rr ool-alg POR,mfr dull-bri yel FLOR,tr ltbrn-rr blk STN,mfr slow-tr fast stmg CUT"

5650.00 5670.00 "LS AA,bcmg incr sl ool occ alg GRNST,decr dns PKST,incr POR-FLOR-STN-CUT,w/v rr trnsl-bf CHT frag"
5670.00 5680.00 "LS tan-ltbrn,occ crm-wh,crpxl-vfxl,gran-micsuc ip,pred v sl ooc alg GRNST w/tr dns v sl ool occ chk-plty PKST,scat ANHY xl-POR fl,v sl DOL cmt,tt-fr intxl-tr ool-alg POR,fr-mg dull-bri yel FLOR,mfr ltbrn-tr blk STN,fr slow-mfr mod fast stmg mlky CUT"

5680.00 5700.00 "LS tan-ltbrn,rr-tr crm-wh,micxl-vfxl,gran-micsuc-occ suc,pred v sl ooc-alg GRNST,w/rr PKST AA,mfr-mg intxl POR,rr-tr ool-alg POR,FLOR-STN-CUT AA"
5700.00 5720.00 "LS AA,incr ooc-oom mat,decr scat PKST frag,mg intxl-mfr ool-tr alg POR,mg bri yel FLOR,fr ltbrn-tr brn STN,rr-tr blk dd o STN,fr mod fast-mg slow stmg mlky CUT"

5720.00 5740.00 "LS tan-brn,tr crm-wh,micxl-vfxl,gran-micsuc-suc ip,pred sl ooc alg GRNST w/rr dns v sl ool occ chk-plty PKST,rr ANHY xl-v rr CHT frag,sl DOL cmt,mg intxl-mfr ool-alg POR,mg bri-tr dull yel FLOR,fr-mg ltbrn-rr blk STN,mfr-mg slow-mod fast stmg mlky CUT"

DEPTH	LITHOLOGY

5740.00 5760.00 "LS AA,pred alg GRNST-v sl ooc,rr-tr PKST AA,fr-mg intxl-fr vug POR-v rr ool POR,FLOR-STN-CUT AA"
5760.00 5780.00 "LS AA,fr-mg intxl-mfr alg/vug-v ool POR,mg bri yel FLOR,fr-mg ltbrn-brn STN-rr blk dd o STN,fr-mg slow-mod fast stmg mlky CUT"

5780.00 5790.00 "LS tan-brn,rr crm-wh,micxl-vfxl,gran,suc ip,pred sl ooc alg GRNST w/rr-tr dns v sl ool occ chk-plty PKST,rr ANHY xl-v rr CHT frag,sl DOL cmt,mg intxl-fr alg-rr ool POR,mg bri-dull yel FLOR,fr-mg ltbrn-rr blk STN,mfr-mg slow-mod fast stmg mlky CUT"

5790.00 5810.00 "LS crm-tan-ltbrn,rr ltgy,crpxl-vfxl,gran-micsuc ip,bcmg ooc-oom sl alg GRNST,rr dns v sl ool occ chk anhy PKST,v rr ANHY xl,v sl DOL cmt,mfr-mg intxl-ool-rr alg POR,fr-mg dull-bri yel FLOR,mfr ltbrn STN,tr blk dd o STN,mfr-mg mod fast stmg-rr slow CUT"

5810.00 5820.00 "LS AA,v rr alg POR,fr-mg ool-intxl POR,FLOR-STN-CUT AA"
5820.00 5840.00 "LS AA,w/sl decr ool POR-incr intxl-alg POR,FLOR-STN-CUT AA"

5840.00 5870.00 "LS tan-ltbrn,v rr crm-wh,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST v sl alg,rr dns occ chk sl ool PKST frag,occ sl DOL cmt,rr scat ANHY xl,fr-g ool-tr intxl POR,fr-mg bri yel FLOR,mfr ltbrn-tr blk STN,fr mod fast-tr slow stmg mlky CUT"

5870.00 5890.00 "LS AA,occ sl alg,sl incr intxl-v rr alg POR,FLOR-STN-CUT AA"
5890.00 5910.00 "LS AA,decr ool-intxl POR,bcmg pred fr ool-tr intxl-v rr alg POR,fr bri-rr dull yel FLOR,tr ltbrn-brn STN,rr blk dd o STN,mfr-fr slow-mod fast stmg mlky CUT"

5910.00 5930.00 "LS tan-ltbrn,rr brn-crm-wh,crpxl-micxl,occ vfxl-gran,v sl micsuc,pred ool dns rr chk PKST,w/stks ooc-oom v sl alg GRNST,rr trnsl CHT frag-v rr ANHY xl,tt-mfr ool-v rr intxl POR,tr bri-rr dull yel FLOR,n-v p ltbrn-v rr blk STN,tr mfr mod fast-slow CUT"

5930.00 5950.00 "LS bcmg pred tan-ltbrn,crpxl-vfxl,occ gran-sl micsuc,ooc-oom GRNST w/v rr alg mat,tr dns sl chk ool anhy PKST incl,sl DOL cmt-v rr ANHY xl,mfr-fr ool-tr intxl-v rr alg POR,tr-mfr dull-bri yel FLOR,tr ltbrn STN-rr blk dd o STN,mfr-mg slow-mod fast CUT "

5950.00 5970.00 "LS AA,w/incr amnt sl ool dns anhy PKST,tt-mg ool-mfr intxl-v rr vug POR,mg bri-rr dull yel FLOR,tr-mfr ltbrn STN,rr blk dd o STN,mfr-mg slow-mod fast stmg CUT"

5970.00 5990.00 "LS ltbrn-tan,crm-wh ip,occ brn,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST w/rr alg mat,rr scat dns-sl chk occ anhy ool PKST,v rr ANHY xl,sl DOL cmt,fr-mg ool-intxl POR,rr alg POR,tr-mfr ltbrn-rr blk STN,fr-mg slow-mod fast-fast stmg mlky CUT"

DEPTH		LITHOLOGY

5990.00 6000.00 "LS AA,pred ooc-oom GRNST w/v rr alg mat,incr PSKT frag-incl,sl incr ANHY cmt-occ sl DOL cmt,pred sl flushed inxl POR,tr-mfr ool-v rr alg POR,mfr-fr dull-bri yel FLOR,tr-mfr ltbrn STN-v rr blk dd o STN,fr slow-tr mod fast stmg CUT"

6000.00 6030.00 "LS pred tan-ltbrn,ltgy ip,AA,g ooc-oom GRNST,n-v rr vis alg mat,scat dns PKST incl,v sl anhy-v rr ANHY xl-rr POR fl,POR-FLOR-STN-CUT AA"

6030.00 6060.00 "LS AA,sl incr dns PKST AA,v rr mot ltbrn-trnsl CHT frag,tt-mg intxl-mfr-fr ool POR,fr dull-mg bri yel FLOR,tr-mfr spty ltbrn STN,v rr spty blk dd o STN,mg slow dif-stmg CUT,tr mod fast stmg CUT"
6060.00 6090.00 "LS ltbrn-tan,crm-wh ip,occ ltgy,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST w/v rr alg mat,tr scat dns-sl chk occ anhy ool PKST,rr ANHY xl,sl DOL cmt,rr CHT frag,tt-fr-mg ool-intxl POR,rr alg POR,tr-mfr ltbrn-tr blk STN,fr-mg slow-mod fast stmg mlky CUT"

6090.00 6100.00 "LS AA,sl decr FLOR,tr-mfr ltbrn-brn STN,fr blk dd o STN,POR-CUT AA"
6100.00 6120.00 "LS AA,mg ool-mfr intxl POR,fr-mg bri-mfr dull yel FLOR,tr ltbrn STN-mfr blk dd o STN,fr slow-mod fast stmg CUT"
6120.00 6140.00 "LS tan,occ ltbrn,rr crm-wh,crpxl-vfxl,occ gran-micsuc,pred ooc-oom GRNST w/v rr alg mat,tr dns ool v rr chk-plty sl anhy PKST,occ DOL cmt,rr ANHY xl,fr-mg ool-tr intxl-v rr alg POR,fr dull-mfr bri yel FLOR,tr-mfr ltbrn-blk STN,mfr-fr slow-mod fast CUT"

6140.00 6170.00 "LS AA,incr sl ool dns PKST,sl incr ANHY cmt-tr POR fl,tr-mg ool-intxl POR,fr bri-tr dull yel FLOR,mfr ltbrn STN-tr blk dd o STN,mfr-fr slow-mod fast stmg mlky CUT"
6170.00 6200.00 "LS tan,occ ltbrn,rr crm-wh,crpxl-vfxl,occ gran-micsuc,pred ooc-oom GRNST w/v rr alg mat,tr dns ool v rr chk-plty sl anhy PKST,occ DOL cmt,rr ANHY xl,fr-mg ool-intxl-rr alg POR,fr-mg dull-mfr bri yel FLOR,fr ltbrn-tr blk STN,mfr-fr slow-mod fast CUT"
6200.00 6220.00 "LS AA,bcmg intbd ooc-oom GRNST AA & dns sl ool occ anhy v sl chk PKST,decr intxl-ool POR,fr dull-bri yel FLOR,tr-mfr lt brn STN,mfr-fr slow-mod fast stmg CUT"

6220.00 6230.00 "LS AA,dul-spty yelgld FLOR,mf slo strmg dif CUT,tr dd blk cast fld o STN,pred mf-g ool intrxln to red-f oom/ooc to scat suc alg fab POR"

6230.00 6250.00 "LS,ltbrn-tan-crm,mott,mic-vf xln,occ suc-grn mtx,mdns mtx,pred ool oom/ooc GRNST to tr dns sl plty/chlky PKST,rr suc alg GRNST,rr chlky mat,rr calc frac flgs;pred fr-interxln to red-oom/ooc to occ suc fab POR,tr blk dd o STN,mf-ltbrn o STN,f-dull-mod bri yel FLOR"

DEPTH	LITHOLOGY

6250.00 6270.00 "LS,ltbrn-tan-crm,sl mott-mott,mic-vf xl,rr crypt xl,sl incr in dns sl chlky sl ool PCKST,rr anhy xls,GRNST AA,tr anhy/chlky/calc fld casts,rr calc frc flgs;pred mf-f intrxl to tr red oom/ooc fab POR,dul-spty yel FLOR,m slo sl dif strm CUT,m-mf ltbrno STN"

6270.00 6300.00 "LS,ltbrn-tan-crm,mott,rr crypt,pred mic-vf xl,mdns-grn-rr suc mtx,pred ool oom/ooc intrxl GRNST to sl ool dns PKST,tr chlky offwht mat,sl anhy,sl dol,tr calc/anhy fld casts;pred mf-intrxln to red-mf oom/ooc fab POR,m-slo dif strm CUT,dul-spty bri yel FLOR "

6300.00 6320.00 "LS AA,incr in ool oom/ooc mdns mtx GRNST,tr sl ool PKST,v rr alg suc GRNST,sl chlky/anhy,tr calc/chlky/anhy fld casts,tr chlky mat,rr calc frac flgs;pred mf-f intrxln to red mf oom/ooc fab POR,mf-ltbrn o STN,spty dd blk o STN,spty nri-dul yelgld FLOR"

6320.00 6340.00 "LS,ltbrn-tan-occ crm,sl mott-mott,mic-vf xln,pred ool oom/ooc GRNST w/thnly intrbd sl ool sl chlky dns PKST;pred mf-f intrxl to red-mf-f oom/ooc to v/scat microsucrosic/suc fab POR,dul-spty mbri yelgld FLOR,m-slo dif/milky ring CUT,mf-f ltbrn o STN"

6340.00 6350.00 "LS AA, v rr ltbrn CHT frgs,rr ANHY xls,v sl chlky,decr sl ool dns PCKST,sl incr to mf-oom/ooc fab POR,FLOR AA,o STN AA,tr blk dd o STN fld casts"

6350.00 6370.00 "LS,ltbrn-tan-crm-occ brn,mott-sl mott,mic-vf xln,grn-mdns mtx,sl dolo,pred sl ool to ool oom-ooc GRNST w/intrbd sl ool dns PKST,rr ANHY xls,rr chlky mat,v rr calc frac flgs,tr calc/chlky cast flgs;pred mf-f ool intrxl to red-g oom/ooc fab POR,v scat sucmtx"

6370.00 6390.00 "LS AA,sl incr in sl ool dns v sl anhy/chlky PKST,tr dd blk cast fld o STN,pred mf ltbrn-brn o STN,dul-spty mbri-bri yelgld FLOR,m-slo dif/milky ring CUT"

6390.00 6410.00 "LS,ltbrn-tan-occ crm,mott,mic-vf xln,grn-microsuc-mdns mtx,pred oom/ooc ool GRNST,tr sl ool dns PCKST,rr anhy xls,rr calc frac,sl chlky,sl dolo;pred red-f oom/ooc to f-intrxln fab POR,spty bri yel FLOR,dul yelgld FLOR,pred mf-ltbrn o STN,tr blk o STN"

6410.00 6430.00 "LS,ltbrn-tan,sl mott-mott,mic vf xl,tr crypt xln,sl inc dns sl ool plty PKST,scat ool oom-ooc mdns GRNST,v rr ltbrn CHT,sl dolo/chlky,rr ANHY xls;pred mf-f intrxl to tr red-mf oom/ooc fab POR,dul-spty mbri yelgld FLOR,m-slo dif/milky ring CUTpred ltbrn o STN"

6430.00 6450.00 "LS AA, wk-m slo strmg dif sl milky ring CUT,tr cast fld blk dd o STN,pred ltbrn-occ brn o STN,pred mf-f intrxln to red-mf oom to occ fab POR"

6450.00 6470.00 "LS,ltbrn-tan,mic-vf xl,mdns-grn,rr micrsuc mtx ool oom/ooc mdns mtx GRNST,tr sl ool dns PKST,sl chlky/anhy,tr calc fld casts,tr chlky mat,rr calc frac flgs;pred mf-f intrxln to red mf oom/ooc fab POR,mf-ltbrn o STN,spty dd blk o STN,spty nri-dul yelgld FLOR"

DEPTH	LITHOLOGY

6470.00 6490.00 "LS,ltbrn-tan-crm,sl mott-mott,mic-vf xl,rr crypt xl,sl incr in dns sl chlky sl ool PkST,ool oom/ooc GRNST,tr anhy/chlky/calc fld casts,rr calc frc flgs;pred mf-f intrxl to tr red oom/ooc fab POR,dul-spty yel FLOR,m slo sl dif strm CUT,m-mf ltbrn o STN"

6490.00 6510.00 "LS AA,incr sl ool dns chlky sl plty PKST,scat mott ool mdns oom to ooc GRNST,pred m-mf ltbrn-brn o STN,dul-spty mbri-yelgld FLOR,m-slo dif CUT"
6510.00 6530.00 "LS,ltbrn-tan-crm,mott,mic-vf xln,grn mtx-mdns mtx, mdns ool oom/ooc GRNST to dns sl plty/chlky PKST,rr offwht chlky mat,rr calc frac flgs;pred m-mfr-interxln to red-oom/ooc fab POR,tr blk dd o STN,mf-ltbrn o STN,dul-mbri yel FLOR,wk-m slo strm CUT"

6530.00 6550.00 "LS AA,FLOR AA,POR AA,decr in blk cast fld dd o STN, sl decr in ltbrn o STN"

6550.00 6570.00 "LS,ltbrn-tan-occ crm,sl mot-mot,occ crypt,mic-vf xl,mdns-dns-grn mtx,v sl dolo,pred ool oom/ooc mdns GRNST to sl ool dns PKST,tr anhy xls,v rr ltbrn CHT frgs,tr chlky mat;pred m-mf intrxln fab POR to red-mf oom to ooc fab POR,spty ,mbri yelgld FLOR"

6570.00 6590.00 "LS AA,sl incr in mdns ool mott oom/ooc GRNST,spty mbri-bri yelgld FLOR,wk-tr slo v sl dif strmg CUT,m-mf ltbrn o STN,rr blk dd o STN"
6590.00 6610.00 "LS,ltbrn-tan-crm,mott,rr crypt,pred mic-vf xl,mdns-grn mtx,pred ool oom/ooc intrxl GRNST to sl ool dns PKST,tr chlky offwht mat,sl anhy,sl dol,tr calc/anhy fld casts;pred mf-intrxln to red-mf oom/ooc fab POR,m-slo dif strm CUT,dul-spty bri yel FLOR "

6610.00 6630.00 "LS,ltbrn-tan-crm-occ brn,mott-sl mott,mic-vf xln,grn-mdns mtx,sl dolo,pred sl ool to ool oom-ooc GRNST w/intrbd sl ool dns PKST,rr ANHY xls,rr chlky mat,tr calc/chlky cast flgs;pred mf-f intrxl to red-g oom/ooc fab POR,mf ltbrn o STN,tr blk dd o STN"

6630.00 6640.00 "LS AA,pred ooc-oom GRNST,decr amnt dns ool PKST,occ anhy-tr ANHY xl-cmt,sl dol,tt-mg ool-tr intxl POR,tr dull-bri yel FLOR,tr ltbrn-brn STN,rr blk dd o STN,tr of mg mod fast-fr slow stmg CUT"

6640.00 6650.00 "LS AA,POR-FLOR-STN-CUT AA"
6650.00 6670.00 "LS tan-ltbrn,occ crm-ltgy,crpxl-micxl,tr gran-micsuc,pred ooc-oom GRNST,tr thn ool dns v sl chk PKST w/tr ANHY cmt,occ DOL cmt,v rr trnsl CHT frag,rr ANHY fl POR,tt-mg ool-tr intxl POR,tr-mfr dull-bri yel FLOR,tr ltbrn-rr spty blk STN,mfr mod fast CUT"

6670.00 6690.00 "LS AA,decr ool dns PKST,fr-mg ool-mfr intxl POR,mfr-fr bri-tr dull yel FLOR,fr ltbrn-tr brn STN,tr blk dd o STN,fr slow-mfr fast stmg mlky CUT"

DEPTH	LITHOLOGY

6690.00 6720.00 "LS tan-ltbrn,occ mbrn-ltgy,rr crm,crpxl-vfxl,gran-micsuc ip,ooc-oom GRNST w/intbd stks sl ool dns anhy PKST,v rr DOL cmt,scat ANHY xl-v rr trnsl-bf CHT frag,tr-fr ooc-tr intxl POR,mfr-fr dull-bri yel FLOR,mfr ltbrn-rr brn-tr blk STN,fr slow-mfr fast CUT"

6720.00 6730.00 "LS AA,w/incr amnt sl ool occ anhy PKST w/dns mtx,v sl DOL cmt,decr ooc-oom GRNST,tt-tr ool-rr intxl POR,tr dull-rr bri yel FLOR,tr ltbrn-rr brn STN,sl tr blk dd o STN,mfr-fr slow-tr mod fast stmg mlky CUT"

6730.00 6750.00 "LS tan-crm,rr ltbrn-v rr wh-brn,crpxl-micxl,occ vfxl-gran,v rr micsuc,pred sl ool dns anhy PKST,w/stks ooc-oom GRNST,sl dol,rr-tr ANHY xl-incl,v rr CHT frag,tt-tr ool-v rr intxl POR,tr-mfr dull-rr bri yel FLOR,v rr ltbrn-blk STN,n-sl tr slow-mod fast CUT"

6750.00 6770.00 "LS AA,pred dns PKST,w/thn stks ooc-oom GRNST,mfr ool-tr intxl POR,tr bri-mfr dull yel FLOR,rr spty ltbrn STN-rr blk dd o STN,mfr slow-rr-tr mod fast stmg CUT"

6770.00 6780.00 "LS AA,sl tr ooc-oom GRNST,rr-sl tr ool-rr intxl POR,sl tr bri-tr dull yel FLOR,rr spty ltbrn STN-v rr blk dd o STN,rr mod fast-tr slow stmg-slow dif CUT"

6780.00 6800.00 "LS crm-tan,occ ltbrn-rr brn,crpxl-vfxl,occ gran-micsuc,pred sl ooc-oom GRNST,w/scat tr dns sl ool anhy PKST,v sl dol,v rr bf CHT frag,sl tr ltbrn-v rr spty blk STN,fr mod fast-fast-tr slow stmg mlky CUT"

6800.00 6820.00 "LS tan-ltbrn,occ crm,rr brn,crpxl-vfxl,gran-micsuc ip,pred ooc-oom GRNST,tr scat sl ool dns v sl anhy PKST,v rr DOL cmt-ANHY xl-POR fl,v rr trnsl-bf CHT frag,fr-mg ool-mfr intxl POR,mfr bri-tr dull yel FLOR,tr ltbrn-rr blk STN,fr slow-tr mod fast CUT"

6820.00 6830.00 "LS AA,v sl incr dns crpxl PKST-CHT frag-ANHY xl,fr-mg ool-fr intxl POR,fr-mg bri-tr dull yel FLOR,fr ltbrn-tr blk dd o STN,fr-mg slow-mod fast stmg CUT"

6830.00 6850.00 "LS tan-ltbrn-crm,rr brn,crpxl-vfxl,gran-suc ip,pred ooc-oom GRNST,tr scat sl ool crpxl dns v sl anhy PKST,v rr DOL cmt-ANHY xl-POR fl,v rr trnsl-bf CHT frag,fr-mg ool-mfr intxl POR,fr-mg bri-tr dull yel FLOR,tr ltbrn-rr blk STN,mg slow-fr mod fast CUT"

6850.00 6870.00 "LS AA,sl incr brn,pred micxl-vfxl,gran-micsuc ip,occ suc,pred ooc-oom GRNST w/v v rr scat PKST frag-incl,decr CHT frag-ANHY xl,fr-mg ool-intxl POR,fr-mg bri yel FLOR,fr ltbrn STN-tr blk dd o STN,mg slow-mfr mod fast stmg mlky CUT"

6870.00 6900.00 "LS AA,pred g ool-fr intxl POR,mg bri-v rr dull yel FLOR,fr ltbrn-tr brn STN,mfr blk dd o STN,mg mod fast-tr fast stmg mlky CUT"

DEPTH	LITHOLOGY

6900.00 6930.00 "LS tan-ltbrn,occ crm-brn,micxl-vfxl,gran-suc ip,pred ooc-oom GRNST,v rr scat dns occ chk PKST frag,v rr ANHY xl-CHT frag,v sl dol,fr-mg intxl-fr ool POR,mg bri yel FLOR,fr ltbrn-brn STN,rr blk dd o STN,fr-mg slow-mod fast-tr fast stmg mlky CUT"

6929.00 6950.00 "LS AA,incr dns sl ool crpxl occ chk PKST frag,fr-mg intxl-ool POR,mg bri yel FLOR,tr-fr ltbrn-rr brn STN,tr blk dd o STN,mg slow-fr mod fast-fast stmg mlky CUT"

6950.00 6980.00 "LS tan-ltbrn,rr crm-brn,micxl-vfxl,gran-suc ip,pred ooc-oom GRNST,rr scat dns occ chk PKST frag,v rr ANHY xl-CHT frag,v sl DOL cmt,fr-mg intxl-fr ool POR,mg bri yel FLOR,fr ltbrn-rr brn STN,tr blk dd o STN,fr-mg slow-mod fast-tr fast stmg mlky CUT"

6980.00 7020.00 "LS tan-ltbrn,occ crm,rr brn,micxl-vfxl,gran-suc ip,pred ooc-oom GRNST,rr scat dns occ chk PKST frag,v rr ANHY xl,v sl DOL cmt,fr-mg intxl-fr ool POR,mg bri yel FLOR,fr ltbrn-brn STN,tr blk dd o STN,fr-mg mod fast-fast stmg mlky CUT"

7020.00 7050.00 " LS AA,sl incr dns occ chk sl ool PKST-sl chty-v rr trnsl-bf CHT frag,v rr ANHY xl-incl,sl decr intxl POR,FLOR-STN-CUT AA"
7050.00 7080.00 "LS tan-ltbrn,occ crm,rr brn,micxl-vfxl,gran-suc ip,pred ooc-oom GRNST,v rr scat dns occ chk crpxl PKST frag,rr ANHY xl-CHT frag,v sl dol cmt,fr-mg intxl-ool POR,mg bri yel FLOR,fr ltbrn-brn STN,tr blk dd o STN,fr-mg mod fast-fast stmg mlky CUT"

7080.00 7100.00 "LS AA,sl decr intxl POR,FLOR-STN-CUT AA"

7100.00 7125.00 "LS tan-ltbrn,occ crm-rr brn,micxl-vfxl,gran-suc ip,pred ooc-oom GRNST,rr scat dns occ chk sl anhy PKST frag,rr ANHY xl,v sl dol cmt,fr-mg intxl-ool POR,mg bri yel FLOR,mfr-fr ltbrn-brn STN,tr blk dd o STN,fr-mg mod fast-tr fast stmg mlky CUT"

FORMATION TOPS

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #16-23 NW 1-A HORIZONTAL LATERAL LEG #1

FORMATION NAME		SAMPLES MEASURED DEPTH	SAMPLES TRUE VERTICAL DEPTH	DATUM KB:4706'
LOWER ISMAY		5445'	5444'	-738'
GOTHIC SHALE		5518'	5503'	-797'
DESERT CREEK		5533'	5511'	-805'
DC 1-A ZONE		5547'	5517'	-811'

GEOLOGICAL SUMMARY

AND

ZONES OF INTEREST

The Mobil Exploration and Production U.S., Inc., Ratherford Unit #16-23 Horizontal Lateral Leg #1 was a re-entry of the Mobil Ratherford Unit #16-23 located in Section 16, T41S, R24E, and was sidetracked in a northwesterly direction from a 5424' measured depth, 5424' true vertical depth, on July 15, 1998. The lateral reached a total measured depth of 7125', true vertical depth of 5520.7' at total depth, with a horizontal displacement of 1700' and true vertical plane 319.8 degrees, on July 18, 1998; in the upper Desert Creek 1-A porosity zone, when terminated. The curve and lateral sections were drilled with no significant problems and remained in the 1-A porosity zone throughout the length of the lateral. The curve and lateral sections were drilled with fresh water and polymer sweeps as the drilling fluid. As this lateral was in an injection well, no measurable amount of oil was noted on the pits while drilling the 1-A zone in this northwesterly direction. During the lateral section through the 1-A porosity zone, the background gases noted on the accompanying mud log, showed a marked increase when the Upper Desert Creek 1-A porosity zone was penetrated in the curve. During the lateral section, the background gas started low and increased as the lateral progressed and averaged 1000 units throughout. Very minor problems occurred early in the well preparation prior to the drilling of Leg #1. The problems encountered were, the well flowing at approximately 20 to 30 barrels per hour after pulling bridge plug, and the amounts of H_2S (up to 50 ppm) noted on the trips for the whipstock, curve assemblies. As the curve section progressed, the amount of H_2S dropped significantly, and as the lateral section progressed the water flow decreased to a very minor flow of less the 5 barrels per hour. After pulling the whipstock for this first of two laterals, it was noted that the whipstock had been cut, by the window mills, down its side, indicating that the mills had possibly hit a casing centralizer, causing them to cut a short section of the casing and the whipstock. When running the curve assembly, the first few feet cut was very slow, before possibly breaking the centralizer and moving away from the vertical well bore. The low gas readings early in the lateral section can be attributed to the amount of flushing near the vertical well bore. The samples showed fair to good oil shows throughout the drilling of the lateral in the 1-A porosity zone.

The objectives of the Ratherford Unit #16-23 Leg 1 horizontal lateral were to identify and define the porosity zone of the 1-A bench of the Desert Creek Member of the Upper Paradox Formation, and to evaluate porosity and reservoir properties. These objectives were accomplished and it became apparent that the 1-A zone in this lateral direction was a single, predominately homogeneous unit, with intervals showing vertical variation. After completing the curve section of the lateral, the lateral section required occasionally significant amounts of sliding to maintain vertical and horizontal plane direction. The borehole remained within 4 feet or less of the proposed target line, until reaching a horizontal displacement of approximately 1360', where the vertical difference began increasing until reaching a maximum difference of 11' feet. The lateral remained in the 1-A porosity interval throughout its length.

The basal Upper Ismay, Lower Ismay, Gothic Shale, the transition zone at the top of the Desert Creek, and the 1-A porosity zone were encountered while drilling the curve section of the lateral. Kick off point for this lateral was 5424' measured and true vertical depth, in the dense limestones and very thin marls near the base of the Upper Ismay.

The top of the Upper Ismay was not seen while drilling the curve portion of Leg #1, but was estimated to be at the approximate measured depth of 5350', true vertical depth of 5350'. The basal 21' of the Upper Ismay formation was characterized by clean to slightly argillaceous, dense limestone and scattered thin streaks of calcareous to dolomitic, dark gray to black, slightly carbonaceous shales. The limestone was brown to dark brown, occasionally light gray to dark gray brown, microcrystalline to cryptocrystalline, clean to argillaceous, some chalky to slightly marly, occasionally slightly silty and very slightly anhydritic. Scattered brown to dark brown cherts was noted in the limestones. The limestones showed no to very rare streaks of very poor intercrystalline porosity, but had no visible sample shows. The very base of the Upper Ismay from a measured depth of 5440' to the top of the Lower Ismay at a measured depth of 5445' is a very tight and marly dolomitic limestone and thin limey, marly, argillaceous dolomites. These limestones and very thin dolomites, graded into the very thin black, slightly carbonaceous Hovenweep Shale marker between the Upper and Lower Ismay members. The Hovenweep Shale was poorly to fairly represented in the samples in this lateral. An increase in gray brown to dark gray, calcareous to slightly dolomitic, very slightly carbonaceous shales was noted in the samples from a measured depth of 5440' to 5450'.

The top of the Lower Ismay was picked at 5445' measured depth, 5444' true vertical depth, at the base of the very thin Hovenweep shale. This pick was based on the vertical well electric logs as well as a slight change in the lithology and penetration rate, and was at the very thin Hovenweep Shale to Lower Ismay contact. The upper Lower Ismay limestones from 5445' to 5486' were predominately cream to tan to medium brown, with some light gray brown to dark brown, microcrystalline to cryptocrystalline, clean to earthy, chalky in part, some dolomitic and were very slightly silty. Minor amounts of chert and rare scattered microfossils were also observed. These limestone had streaks of poorly developed intercrystalline porosity, but no visible sample shows. Thinly interbedded in the limestones were rare streaks of light to dark brown, minor dolomites, which were microcrystalline, earthy to clean, with poor intercrystalline porosity, and no visible sample show. From a measured depth of 5486' to 5515', the Lower Ismay was a cream to white to some tan, occasionally brown to gray brown, microcrystalline to cryptocrystalline, dense limestone. This limestone had an earthy to dense texture, and was chalky, slightly dolomitic to anhydritic, with some slightly to very silty streaks and graded to thin streaks of very limey, cream to white siltstone. These limestone had streaks of thinly interbedded brown to gray brown, microcrystalline to cryptocrystalline dolomite. The thin dolomites were earthy to argillaceous, limey, becoming increasingly marly with depth. The limestones and dolomites showed minor streaks of moderately well developed intercrystalline porosity, with a very poor sample show and no significant increase in background gas noted. Scattered throughout the Lower Ismay were varying amounts of translucent to buff, occasionally dark brown to dark gray brown chert fragment, some micro fossils, and translucent anhydrite crystals to partings. The very base of the Lower Ismay from a measured depth of 5515' to the top of the Gothic Shale at a measured depth of 5518', was interbedded very dense, limestones and dolomites. The limestones are white to tan to light brown, cryptocrystalline to microcrystalline, dense, earthy to chalky and dolomitic. The dolomites are brown to gray brown, slightly mottled, cryptocrystalline to microcrystalline, and clean to argillaceous. With depth the limestones and dolomites became increasingly shaley, and very marly, grading into calcareous to dolomitic, carbonaceous Gothic Shale. These basal carbonates had no visible porosity or sample shows. The basal Lower Ismay limestones and dolomites lay gradationally over the Gothic Shale.

Penetration of the Gothic Shale occurred at 5518' measured depth, 5503' true vertical depth. The Gothic Shale was predominantly dark gray to black to dark gray brown, carbonaceous, silty, brittle to firm, subblocky to fissile, calcareous to slightly dolomitic and slightly micaceous, with minor silty material, and had rare dense limestone and earthy dolomite laminations. The top of the Gothic was gradational from the very thin interbedding of very argillaceous, dolomitic limestones and limy dolomites, to the very dolomitic to calcareous, carbonaceous shale. The top of the Gothic was picked predominantly by a slight decrease in penetration rate and an increase in the percentage of shale in the samples. The base of the Gothic Shale overlays the Desert Creek with a rather sharp contact.

A transition zone appears between the Gothic Shale and the top of the Desert Creek Porosity members of the Paradox Formation. It is at the top of this zone where the top of the Desert Creek member is commonly picked due to a very noticeable facies and penetration rate change. In this lateral leg, the top of the Desert Creek was picked at a measured depth of 5533' and at a true vertical depth of 5511'. The zone was predominately a slightly dolomitic, very dense limestone packstone, with thinly interbedded brown, limy, argillaceous, microcrystalline to cryptocrystalline dolomite streaks and carbonaceous shales partings. The limestones were cream to tan to brown, cryptocrystalline to microcrystalline, clean to slightly argillaceous, with no to very poorly developed intercrystalline porosity, and had no visible fluorescence, stain or cut. The very thin streaks of interbedded dolomite were brown to medium brown, some gray brown, microcrystalline to cryptocrystalline, earthy to argillaceous, slightly limey, occasionally marly, with no visible porosity or sample show. The very slightly oolitic, dense limestone packstones at the very base of the Desert Creek transition zone graded into the oolicastic to oomoldic limestone grainstones and the thin dense limestone packstones of the 1-A porosity zone.

The top of the Desert Creek 1-A porosity zone was picked at 5547' measured depth, 5517' true vertical depth and was noted by sample identification and a significant increase in the penetration rate. The top of the 1-A porosity in this lateral was in an oolicastic to oomoldic, slightly algal, very slightly dolomitic, occasionally anhydritic limestone grainstone with some scattered dense limestone packstone and very rare, very thin, dense limy dolomite fragments near the top. Lithology of the 1-A porosity zone, as seen in the curve section, consisted of light brown to tan to cream, microcrystalline to very fine crystalline, granular to microsucrosic with very rare sucrosic streaks, slightly algal, very slightly oolicastic to oomoldic limestone grainstone. These slightly algal, occasionally oolitic limestones were had traces of dolomitic rich cement, slightly anhydritic to rare crystalline anhydrite inclusions and some porosity filling. Very thinly interbedded throughout the grainstones, in minor amounts were very rare scattered tan to light brown, white to cream to rare light gray brown, cryptocrystalline to microcrystalline, dense occasionally oolitic, chalky, platy, anhydritic packstones, which had no to very poor porosity and no visible sample show. The limestone grainstones had a fair to good intercrystalline to moderately good intercrystalline and some interoolitic porosity, with a trace of algal porosity. The sample show was moderately fair to fair, and consisted of a trace to moderately fair bright to rare dull yellow fluorescence, a moderately fair light brown to brown stain with traces of dark brown to black bitchimum staining* and a good slow to a trace of moderately fast streaming milky cut. The 1-A porosity zone was projected to be 20' (true vertical thickness) thick based on the Ratherford Unit 16-23 vertical well electric logs. Scattered in the good limestone grainstones were minor dense, slightly oolitic limestone packstones, which was seen in varying amounts throughout the section penetrated in the curve. Also noted were very rare brown to gray brown, translucent to clear chert fragments, as well as some very rare, very thin, black carbonaceous shale cavings to partings.

At a measured depth of 5578' and a true vertical depth of 5522.2' the curve was landed with an inclination of 87.5° and a horizontal displacement of 155 feet, in the 1-A porosity zone, 1.5' above the proposed target line. After landing the curve section within the 1-A porosity zone, on July 16, 1998, drilling of the lateral section was commenced in a northwesterly direction, with the well bore being slowly slid upward to reach an angle of approximately 90 degrees. The lithology of the 1-A porosity zone from the top of the zone to the landing of the curve was fairly constant and consisted of brown to light brown to tan, slightly algal to algal limestone grainstone limestones, which became increasingly oolicastic to oomoldic as the lateral progressed. The limestone grainstones had traces of dense to very rare chalky to platy slightly oolitic packstones inclusions. Sample shows were moderately fair in the intercrystalline to algal and very slightly oolicastic to oomoldic porosities.

On July 16, 1998, at the measured depth of 5578', the northwesterly lateral section in the 1-A porosity zone was commenced. The well bore was oriented upward at a very shallow angle to bring the well path level. The well path continued at or just above the proposed target line with a slight down dip of approximately 89.6 °, in the slightly oolicastic to oomoldic, algal limestones grainstones, with fair to some moderately good sample shows until reaching a measured depth of 5780', true vertical depth of 5525', with a horizontal displacement of 360', approximately 1' below the proposed target line. Until this point the average angle of inclination had been, as noted earlier 89.6 degrees.

At the measured depth of 5780', when a tight streak with in the 1-A porosity zone was encountered at the true vertical depth of 5525', the lithology became increasingly oolicastic to oomoldic with an increase in the sample shows and a gradual increase in the background gas. As the lateral continued the top of the 1-A zone was approached and bumped at a measured depth of 6100', 5522.3 true vertical depth, with a horizontal displacement of 680'. At this point the well path was turned downward by the formation and approached and bumped the base of the porosity streak at a measured depth of 6230', 5526' true vertical depth, and a horizontal displacement of 806', still in the good oolicastic to oomoldic, very slightly algal limestone grainstone. As the lateral was continued it appeared that the well path was traveling in a 2.5 to 4 foot thick porosity streak. The hard streak appeared to be relatively flat at a true vertical depth of 5526' and the top varying from 5523.5' to 5522' true vertical depth. The drilling assembly was being slid at various times to control the angles due to the "glances", predominately off the base of the zone and occasionally the top of the zone. Throughout this interval the lithology remained the algal to oolicastic and oomoldic limestone grainstone with predominately good porosity and fair to occasionally moderately good sample shows. When the top or the base was bumped a slight increase in dense limestone packstone was noted. The formation continued to "push" the well path from the top to the base until reaching a measured depth of 6250', 5525.5' true vertical depth with a horizontal displacement of 825', near the base of the porosity streak in the upper 1-A zone.

At the measured depth of 6250' the decision was made to turn the well path downward, in an attempt to find a thicker porosity zone at a deeper true vertical depth. From 6250' measured depth, with the true vertical depth of 5525.5' to a measured depth of 6590', 5527' true vertical depth, with a horizontal displacement of 1167', the top of the hard streak with in the upper 1-A porosity zone was bumped and scrapped. At the measured depth of 6590' the drilling assembly was finally able to penetrate the hard streak. As the well bore bumped and scrapped the hard streak in the 1-A zone the well path showed a decrease in the penetration rate as well as an increase in the dense, occasionally cherty, slightly chalky limestone packstone. The best porosity noted with in this interval remained moderately good in the slightly algal, predominately oolicastic to oomoldic limestone grainstones, with a marked decrease in sample show as the top of the hard streak was scrapped. As the well bore was finally slid downward through the "hard streak", a significant change in the penetration rate was noted as well as a significant increase in the quality of the porosity in the oolicastic to oomoldic and slightly algal limestone grainstones. This change was noted at the measured depth of 6590', as the angle of inclination dropped to 87 degrees.

After dropping below the presumed hard streak, the well path was allowed to slowly drop downward in 1-A zone bench, in the predominately dense tight limestone packstones. These denser limestone packstones were cream to tan, some white, occasionally light brown, cryptocrystalline to microcrystalline, chalky to clean, slightly cherty, occasionally oolitic, slightly anhydritic, with thin streaks of good oolicastic to oomoldic, slightly algal limestone grainstones. The sample shows showed a marked decrease, as did the background gasses. This lithology continued until reaching a measured depth of 6700', 5530' true vertical depth, with a horizontal displacement of 1280'. At this point the well path was turned upward to reacquire the, although moderately thin, more consistent porosity streak in the upper 1-A porosity zone. As the well path rose in true vertical depth, at an angle of inclination of up to 93.6°, the predominately tight packstones with thin streaks of oolicastic to oomoldic to very slightly algal limestone grainstone remained consistent. Upon reaching a measured depth of 6785', 5526.5 true vertical depth with a horizontal displacement of 1360', a significant increase in the penetration rate was noted, with the lithology returning to the very good oolicastic to oomoldic limestone grainstone.

From the measured depth of 6785' to the lateral's termination at a measured depth of 7125', the lithology was in the tan to light brown, very rarely brown, oolicastic to oomoldic limestone grainstone. The limestone grainstone was microcrystalline to very finely crystalline, granular, with some microsucrosic to sucrosic streaks, occasionally dolomitic to anhydritic cement, no to very rare chert fragments and scattered dense, tight, very slightly chalky limestone packstone fragment to inclusion. The porosity was moderately fair to good intercrystalline to interoolitic to oolicastic, and had moderately good to fair sample shows. Of note in the samples were the varying amounts of black bitchimum staining in the samples, and the slow increase in

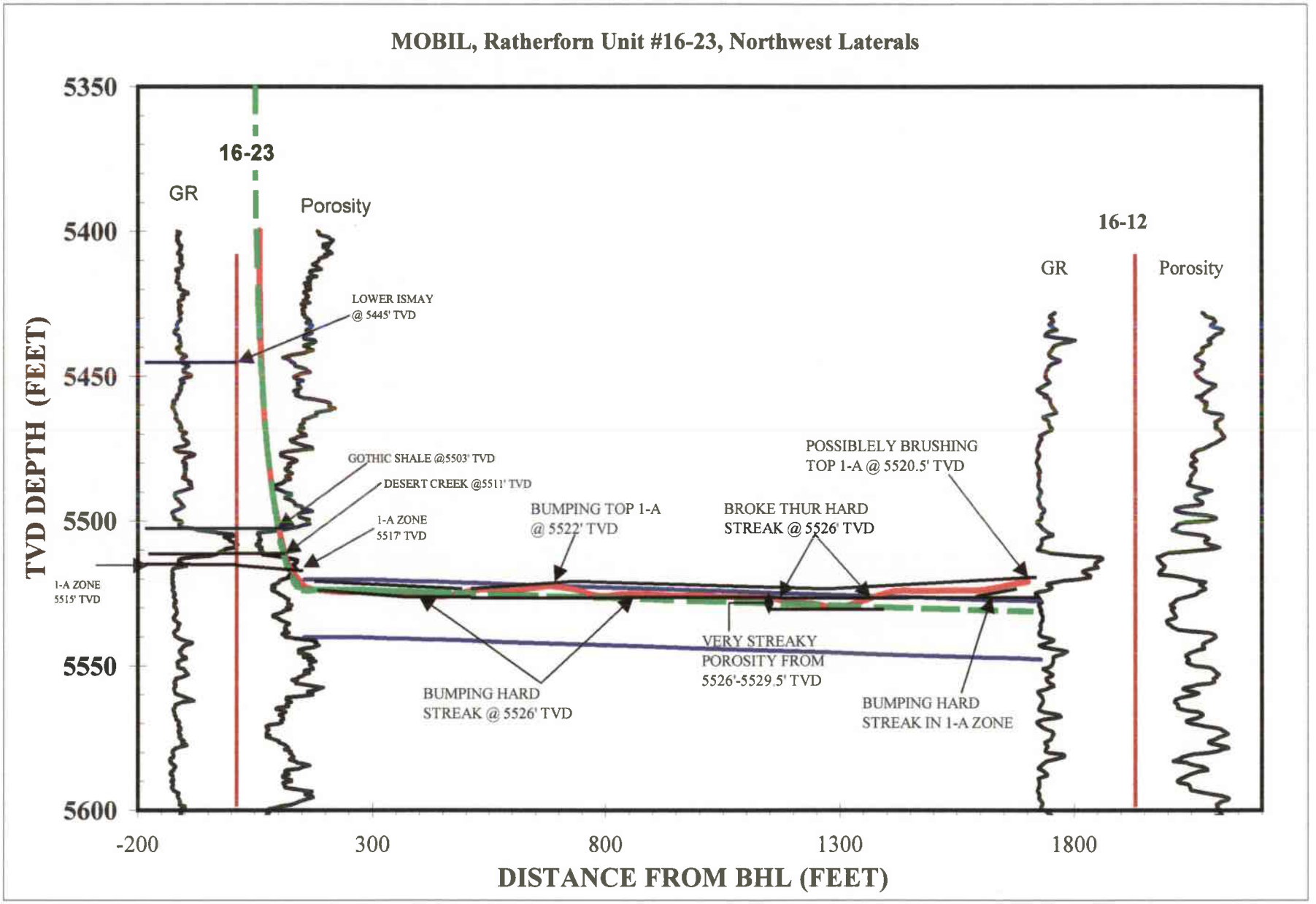
the background gases. At a measured depth of 7026', 5523.5' true vertical depth, with a horizontal displacement of 1600', there was a change in the angle of inclination, with a very slight change in the penetration rate, but only a very minor increase in the amount of dense limestone packstones in the samples. It was interpreted that the bit had glanced off a tight streak of packstone within the 1-A zone. As the well path continued, the true vertical depth of the well bore was allowed to slowly rise, as the lateral approached termination. At the measured depth of 7125', 5520.7' true vertical depth, with a horizontal displacement of 1700' the lateral reach its termination. On July 18, 1998 the Ratherford Unit 16-23 northwesterly lateral Leg #1 was halted at or very near the top of the 1-A porosity zone in the oolicastic to oomoldic, very slightly dolomitic limestone grainstones, with very rare, dense limestone packstones.

In tracking the northwesterly lateral in the 1-A porosity zone in this area, the oolicastic to oomoldic limestone porosities are consistent throughout the upper bench, above a true vertical depth of 5526', with only a lateral change in porosity type noted. Having a minor effect on the porosity, were the minor amounts of anhydrite filled porosity and the scattered, very thin, dense, chalky to platy slightly oolitic limestone packstones interbedded throughout this upper 1-A bench. Staining was fair to good throughout, with sections having a trace to fair amount of staining. The amount of black dead oil staining trapped in the oolicastic to oomoldic limestones, as well as the intercrystalline and very minor algal porosity, being predominately a trace amount to intervals having a fair amount. The fluorescence and cuts remained predominately good throughout the lateral. The interval from 6590' to 6785', when the well bore was turned downward below the hard streak at 5526' true vertical depth, the lithology in the 1-A zone showed a marked change. The limestone packstones increased and had a very thin streak of oolicastic to oomoldic limestone grainstone of 1 foot or less in thickness. The reason for turning the well path downward was to attempt to find a thicker (greater than 2.5' to 4' thick) porosity zone, and open more porosity to injection. It is unknown whether the well bore was turned upward too soon or if the 1-A zone through this interval was not as well developed as hoped, based on the electric log for the offsetting Ratherford 16-12 vertical well. If any thicker porosity through this interval exists, it is hoped that the acid job during completion will reach it.

The lateral used the proposed target line as a reference point through the 1-A bench. The well bore was allowed to follow the line of best porosity after entering the 1-A porosity zone which resulted in the lateral remaining an average of 2' above the target line until reaching a horizontal displacement of 1360'. From 1360' of horizontal displacement to the lateral's termination, the lateral was allowed to stay at true vertical depth until the lateral was terminated approximately 11' above the proposed target line, only approximately 5.5' above the previously consistent hard streak at the true vertical depth of 5526'.

While drilling the curve section, the very minor increases in background gas was due to the poor streaky limestone porosity encountered while drilling the Lower Ismay, with the carbonaceous shale of the Gothic Shale giving up minor amounts of gas. A moderate increase in the background gases was noted when the 1-A zone was penetrated at a measured depth of 5543' in the curve section. A slow increase in the background gases as well as the increase in the sample show, as the lateral section progressed was probably due to the amount of flushing near the vertical well bore. There were not sufficient amounts of gas to flare, nor was there any oil noted on the pits and only minor amounts seen in the samples throughout the lateral section. While this lateral was drilled as a northwesterly sidetrack of the Ratherford Unit 16-23 injection well in the Upper Desert Creek 1-A porosity zone, it was seen to have very good reservoir qualities that appear to not have yet been flushed. This lateral appears to have porosities, although relatively thin, that are well enough developed, in this northwesterly direction, to enhance the overall performance of the1-A porosity zone.

*The black residual staining has been called by Dr. Dave Eby & others as "bitchimum" and is also known as "dead oil" ("dd o stn" on mud logs). This staining is associated with the movement of oil over long periods of time and is a good indicator of producible hydrocarbons when associated with productive porosities, but can also be found in porosities that have been filled by anhydrites and other material at later dates.


MOBIL, Ratherforn Unit #16-23, Northwest Laterals
16-23
GR
Porosity
16-12
GR
Porosity
LOWER ISMAY
@ 5445' TVD
GOTHIC SHALE @5503' TVD
DESERT CREEK @5511' TVD
1-A ZONE
5517' TVD
1-A ZONE
5515' TVD
BUMPING TOP 1-A
@ 5522' TVD
BROKE THUR HARD
STREAK @ 5526' TVD
POSSIBLELY BRUSHING
TOP 1-A @ 5520.5' TVD
VERY STREAKY
POROSITY FROM
5526'-5529.5' TVD
BUMPING HARD
STREAK @ 5526' TVD
BUMPING HARD
STREAK IN 1-A ZONE
TVD DEPTH (FEET)
5350
5400
5450
5500
5550
5600
-200
300
800
1300
1800
DISTANCE FROM BHL (FEET)

MOBIL

RATHERFORD UNIT #16-23
SE HORIZONTAL LATERAL LEG #2
UPPER 1-A POROSITY BENCH
DESERT CREEK MEMBER
PARADOX FORMATION
SECTION 16, T41S, R24E
SAN JUAN, UTAH

GEOLOGY REPORT
prepared by
DAVE MEADE / LUKE TITUS
PASON/ROCKY MOUNTAIN GEO-ENGINEERING CORP.
GRAND JUNCTION, COLORADO
(970) 243-3044

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WELL SUMMARY

OPERATOR:	MOBIL EXPLORATION & PRODUCTION U.S. INC.
NAME:	RATHERFORD UNIT #16-23 SE HORIZONTAL LATERAL LEG #2 IN 1-A UPPER POROSITY BENCH, DESERT CREEK
LOCATION:	SECTION 16, T41S, R24E
COUNTY/STATE:	SAN JUAN, UTAH
ELEVATION:	KB:4706' GL:4693'
SPUD DATE:	7/13/98
COMPLETION DATE:	7/23/98
DRILLING ENGINEER:	BENNY BRIGGS / SIMON BARRERA
WELLSITE GEOLOGY:	DAVE MEADE / LUKE TITUS / MARVIN ROANHORSE
MUDLOGGING ENGINEERS:	DAVE MEADE / LUKE TITUS / MARVIN ROANHORSE
CONTRACTOR:	BIG "A" RIG 25
TOOLPUSHER:	J. DEES
HOLE SIZE:	4 ¾"
CASING RECORD:	SIDETRACK IN WINDOW AT 5408' MEASURED DEPTH
DRILLING MUD:	M-I
ENGINEER:	DANE BEASON/RON WESTENBERG
MUD TYPE:	FRESH WATER & BRINE WATER W/ POLYMER SWEEPS
DIRECTIONAL DRILLING CO:	SPERRY-SUN
ELECTICAL LOGGING:	NA
TOTAL DEPTH:	7238' MEASURED DEPTH; TRUE VERTICAL DEPTH-5554.6'
STATUS:	PREPARE WELL FOR RIG MOVE TO R.U. 16-13 LOCATION

DRILLING CHRONOLOGY
RATHERFORD UNIT #16-23
1-A SE HORIZONTAL LATERAL LEG #2

DATE	DEPTH	DAILY	ACTIVITY
7/19/98	7125'/ 5402'	12'	TOH W/WHIPSTOCK #1-L.D. WHIPSTOCK & LATCH ASSEM.-P.U. WHIPSTOCK #2 & STARTER MILL-ORIENT-TIH-SET WHIPSTOCK @ 5402'-CIR.-MILL W/STARTER MILL 5402' TO 5404'-CIR.-TOH-L.D. STARTER MILL-P.U. WINDOW MILLS-TIH-MILL 5402' TO 5408'-PUMP SWEEP & CIR. BTMS UP-L.D. 13 JTS AOH-TOH-L.D. MILLS-P.U. CURVE ASSEM. & BIT-ORIENT & TEST-TIH- P.U. PH-6-TIH-CIR & CLEAN PIPE- RIG UP GYRODATA & RUN GYRO-TIME DRLG FROM 5408' TO 5411'-DIR DRLG & WIRE LINE SURVEYS
7/20/98	5414'	186'	DIR DRLG & WIRE LINE SURVEYS- PULL GYRO & R.D. GYRO DATA-DIR DRLG & SURVEYS TO 5600' (TD OF CURVE 1:30 PM)-PUMP SWEEP & CIR. OUT SPLS-L.D. 55 JTS AOH PIPE-TOH; L.D. CURVE ASSEMBLY-P.U. LATERAL BHA W/BIT #2 & TEST MWD / MUD MOTOR-TIH
7/21/98	5600'	564'	TIH W/LAT ASSEM-ON BOTTOM 2:45 AM (MST)DIR DRLG & SURVEYS F/5600 T/6164
7/22/98	6164'	868'	DIR DRLG & SURVEYS F/6164 T/7032
7/23/98	7032'	TD	DIR DRLG & SURVEYS F/7032 T/7238 TD;PUMP SWEEP & CIR OUT SPLS-TOH-L.D. LATERAL ASSEMBLY-P.U. RETRIEVING HOOK-TIH-P.U. 10 JTS AOH-LATCH INTO WHIPSTOCK #2-T0H

DAILY ACTIVITY

Operator: MOBIL
Well Name: RATHERFORD UNIT #16-23 SE 1-A HORIZONTAL LATERAL LEG #2

DATE	DEPTH	DAILY	DATE	DEPTH	DAILY
7/19/98	7125'/ 5402'	12'			
7/20/98	5414'	186'			
7/21/98	5600'	564'			
7/22/98	6164'	868'			
7/23/98	7032'	TD			

BIT RECORD

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #16-23 SE 1-A HORIZONTAL LATERAL LEG #2

RUN	SIZE	MAKE	TYPE	IN/OUT	FTG	HRS	FT/HR
#1 (RR)	4 3/4"	STC	MF-2GP	5409'/ 5600'	191'	17	11
#2	4 3/4"	STC	MF-37P	5600'/ 7238'	1638'	49.5	33

MUD REPORT

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #16-23 SE 1-A HORIZONTAL LATERAL LEG #2

DATE	DEPTH	WT	VIS	PLS	YLD	GEL	PH	WL	CK	CHL	CA	SD	OIL	WTR
7/19/98	5408'	8.8	26	1	1	0/0	10.0	NC	NC	45000	4800	TR	0%	100%
7/20/98	5472'	8.8	26	1	1	0/0	9.0	NC	NC	46000	5800	TR	0%	100%
7/21/98	5671	8.8	26	1	1	0/0	11.0	NC	NC	48000	5200	TR	0%	100%
7/22/98	6282'	8.9	26	1	1	0/0	12.0	NC	NC	50000	4800	1	0%	99%
7/23/98	7238'	8.9	26	1	1	0/0	11.0	NC	NC	50000	4800	1	TR	99%

SPERRY-SUN DRILLING SERVICES

SURVEY DATA

Customer ... : Mobil (Utah)

Platform ... : RATHERFORD UNIT

Slot/Well .. : BA25/16-23 2A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET		EASTINGS FEET		VERTICAL SECTION	DOG LEG
6223	89.9	134	5546.98	471.58	S	499.93	E	687.07	5.2
6255	91.4	134.7	5546.62	493.95	S	522.81	E	719.04	5.17
6286	92.2	135.1	5545.64	515.82	S	544.76	E	749.99	2.88
6318	92.8	135.4	5544.25	538.52	S	567.27	E	781.91	2.1
6350	91.5	134.7	5543.05	561.15	S	589.86	E	813.84	4.61
6381	89.8	134.2	5542.7	582.86	S	611.99	E	844.8	5.72
6413	89.2	134	5542.97	605.13	S	634.97	E	876.78	1.98
6444	90.5	134.5	5543.06	626.76	S	657.17	E	907.76	4.49
6477	92.1	136.1	5542.31	650.21	S	680.38	E	940.69	6.86
6507	90.1	135.1	5541.73	671.64	S	701.36	E	970.63	7.45
6539	88.2	134.4	5542.21	694.16	S	724.08	E	1002.58	6.33
6570	89.1	133.7	5542.94	715.71	S	746.36	E	1033.55	3.68
6602	87.3	132.1	5543.94	737.48	S	769.78	E	1065.53	7.52
6634	86.7	131.5	5545.62	758.78	S	793.61	E	1097.49	2.65
6666	87.8	132.2	5547.15	780.1	S	817.42	E	1129.45	4.07
6698	86.7	132.4	5548.69	801.62	S	841.06	E	1161.41	3.49
6729	88.4	133.3	5550.01	822.68	S	863.76	E	1192.38	6.2
6761	87.7	134.2	5551.1	844.79	S	886.86	E	1224.35	3.56
6793	88.2	134.5	5552.25	867.15	S	909.73	E	1256.3	1.82
6825	91.1	136.1	5552.44	889.89	S	932.24	E	1288.24	10.35
6857	91.3	136.6	5551.77	913.04	S	954.32	E	1320.14	1.68
6888	88.2	136.1	5551.91	935.47	S	975.71	E	1351.05	10.13
6920	89.1	137.2	5552.66	958.73	S	997.67	E	1382.93	4.44
6952	88.6	137.7	5553.3	982.3	S	1019.31	E	1414.78	2.21
6984	88.8	135.9	5554.03	1005.62	S	1041.21	E	1446.66	5.66
7015	88.9	136.1	5554.65	1027.91	S	1062.74	E	1477.58	0.72
7047	89.6	135.8	5555.07	1050.91	S	1084.98	E	1509.5	2.38
7079	90.1	134.2	5555.15	1073.54	S	1107.61	E	1541.45	5.24
7111	91.8	135.4	5554.62	1096.08	S	1130.31	E	1573.41	6.5
7143	90.4	134.9	5554.01	1118.76	S	1152.88	E	1605.35	4.65
7174	88.9	133.3	5554.2	1140.34	S	1157.14	E	1636.33	7.07
7204	89.8	132.8	5554.54	1160.81	S	1197.06	E	1666.32	3.43
7238	89.8	132.8	5554.6	1183.91	S	1222	E	1700.32	0

SPERRY-SUN DRILLING SERVICES
SURVEY DATA

Customer ... : Mobil (Utah)
Platform ... : RATHERFORD UNIT
Slot/Well .. : BA25/16-23 2A1

MEASURED DEPTH	ANGLE DEG	DIRECTION DEG	TVD	NORTHINGS FEET		EASTINGS FEET		VERTICAL SECTION	DOG LEG
5400	0.8	270.92	5399.38	28.98	N	56.63	W	-61.48	0
5402	0.77	271.28	5401.38	28.98	N	56.66	W	-61.5	1.52
5409	3.7	132	5408.38	28.83	N	56.54	W	-61.31	61.61
5419	8.2	133.4	5418.32	28.13	N	55.78	W	-60.27	45.02
5429	13.6	133.8	5428.14	26.82	N	54.41	W	-58.38	54
5439	18.8	134	5437.73	24.89	N	52.4	W	-55.59	52
5449	24.1	134.1	5447.04	22.34	N	49.78	W	-51.94	53
5459	28.8	134.2	5455.99	19.24	N	46.58	W	-47.49	47
5469	32.7	134.3	5464.58	15.67	N	42.92	W	-42.38	39
5479	35.9	134.3	5472.84	11.74	N	38.89	W	-36.75	32
5489	39.9	134.6	5480.73	7.44	N	34.5	W	-30.62	40.04
5499	42.7	130.2	5488.24	3	N	29.63	W	-24.02	40.33
5509	47.2	130.6	5495.32	1.58	S	24.25	W	-16.96	45.09
5519	50.8	126.3	5501.88	6.27	S	18.34	W	-9.43	48.45
5529	54.8	126.1	5507.93	10.97	S	11.91	W	-1.51	40.03
5539	58.9	127.4	5513.39	15.98	S	5.21	W	6.82	42.42
5549	63.8	128	5518.19	21.35	S	1.74	E	15.57	49.28
5559	68	128.9	5522.27	27.02	S	8.88	E	24.68	42.8
5569	73.2	129.4	5525.59	32.97	S	16.19	E	34.1	52.21
5600	87.7	131.8	5530.72	52.83	S	39.33	E	64.58	47.39
5651	87	133.5	5533.08	87.34	S	76.8	E	115.52	3.6
5683	87.5	132.8	5534.61	109.2	S	100.12	E	147.47	2.69
5715	88	132.2	5535.87	130.8	S	123.7	E	179.45	2.44
5747	88.6	131.4	5536.82	152.12	S	147.54	E	211.43	3.12
5778	89.2	131.7	5537.41	172.68	S	170.73	E	242.43	2.16
5810	89.4	131.2	5537.8	193.86	S	194.72	E	274.42	1.68
5842	86.7	130.1	5538.89	214.69	S	218.98	E	306.39	9.11
5874	85.8	130.1	5540.99	235.26	S	243.4	E	338.3	2.81
5906	86.8	131.5	5543.05	256.12	S	267.58	E	370.23	5.37
5937	87.5	131.7	5544.59	276.68	S	290.73	E	401.19	2.35
5969	88.2	132.2	5545.79	298.06	S	314.51	E	433.17	2.69
6000	88.4	132.6	5546.71	318.95	S	337.39	E	464.15	1.44
6032	90.1	132.9	5547.13	340.67	S	360.89	E	496.15	5.39
6064	90.4	133.3	5546.99	362.53	S	384.25	E	528.14	1.56
6095	91.5	133.5	5546.48	383.83	S	406.77	E	559.13	3.61
6127	90.8	133.5	5545.84	405.85	S	429.98	E	591.11	2.19
6159	89.1	132.8	5545.86	427.74	S	453.33	E	623.1	5.75
6191	88.5	133.1	5546.53	449.54	S	476.74	E	655.09	2.1

SAMPLE DESCRIPTIONS

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #16-23 SE 1-A HORIZONTAL LATERAL

DEPTH		LITHOLOGY

5409.00 5420.00 "LS,tn-crm,crypt-mic xln,dns-tt mtx,sl rthy-chlky,scat plty,tr chlky mat,sl anhy,tr ltgy-tn-bn CHT frgs;pred compact xl to tt intrxl fab POR,v-spty mbri yelgld FLOR,no CUT,no o STN"

5420.00 5430.00 "LS,ltbn-bn-ltgybn-lygy,crypt-vf xln,mdns-tt mtx,occ sl slty,rthy-chlky,incr arg,tr CHT AA,sl anhy-rr anhy xls;pred intrxl fab POR,n vis o STN,no CUT,v-spty pr dul FLOR"

5430.00 5440.00 "LS tan-brn-dkbrn,occ crm,crpxl-micxl,dns,occ cln,rthy-dol,v arg-mrly,chty,tt,NFSOC,w/tr DOL m-dkbrn,micxl,arg-v sl slty,lmysl mrly-mrly,tt,NFSOC & scat dkbrn-brn-gygy CHT frag-blk dol-calc mica SH lams"

5440.00 5450.00 "LS AA,pred brn,crpxl,dns,rr mic fosincr mrly-grdg to lmy MRLST ip,w/DOL mbrn,micxl,lmy,v shy,rr mic fos,grdg to dol MRLST,incr SH AA & scat CHT frag AA"

5450.00 5460.00 "DOL brn-mgybrn,micxl,rthy-arg,sl mrly,lmy,v sl slty,tr mic fos,tt,NFSOC,w/LS crm-brn,micxl-crpxl,rthy,sl slty,chty-tr gy-mbrn CHT frag,tt,NFSOC,scat blk sl carb SH"

5460.00 5470.00 "LS bcmg pred tan-crm,occ brn,crpxl-micxl,rthy-chk ip,cln-dns,dol,sl anhy,chty,v sl slty,tt,NFSOC,w/scat DOL AA,NFSOC,rr ltgy-brn CHT frag,rr SH lams"

5470.00 5480.00 "LS crm-wh-ltgy,occ tan,AA,slty-v slty,occ grdg to v lmy sl mica SLTST,tr brn DOL incl-v rr dkgy-blk SH ptgs-scat CHT frag"

5480.00 5500.00 "LS crm-wh,bcmg pred ltgy,crpxl-micxl,rthychk,occ plty,sl-v slty,grdg to v lmy SLTST,v arg,sl mica,dns,tt,NFSOC,w/rr-tr DOL tan-ltbrn-rr brn,crpxl-micxl,rthy-cln,occ dns,lmy ip,occ mrly,tt,NFSOC,scat gy-brn CHT FRAG,v rr v thn blk-dkgy carb SH ptgs"

5500.00 5510.00 "LS AA,v arg-slty,occ grdg to lmy SLTST,w/decr thn inbd DOL AA,arg-rthy,rr cln,NFSOC,scat CHT frag,v rr SH ptgs"

5510.00 5520.00 "LS ltgy-crm-wh,occ brn,crpxl-micxl,rthy-chk,occ cln,slty ip,dol-v sl mrly,tt-v rr intxl POR,NFSOC,intbd ltbrn-brn-mbrn DOL crpxl-micxl rthy-cln v arg grdg to dol MRLST ip tt-v rr intxl POR,NFSOC,tr blk carb sooty SH lams"

DEPTH	LITHOLOGY

5520.00 5530.00 "SH blk-dkgy,sbblky,calc-dol,mica,v sl slty,carb-sooty,w/v rr thn wh-crm dns LS & brn-gybrn micxl rthy DOL frags"

5530.00 5540.00 "SH AA,bcmg pred LS crm-tan,occ ltgy-brn,crpxl-micxl,rthy-cln,sl dol,arg,v sl anhy,tt-v rr intxl POR,NFSOC,v thn DOL brn-mbrn gybrn ip,micxl,occ crpxl,lmy rthy-arg,sl mrly tt-v rr intxl POR,NFSOC,rr CHT frag"

5540.00 5550.00 "LS ltbrn-brn ip,AA,occ vfxl-sl gran,bcmg v sl ool,pred dns PKST,sl dol,v rr intxl-v sl ool POR,n-v rr dull yel FLOR,rr blk-dkbrn STN,n-v p slow dif CUT,rr thn DOL-SH ptgs "

5550.00 5570.00 "LS ltbrn-brn,occ crm-wh,AA,PKST bcmg pred micxl-vfxl,gran-micsuc ip,ooc-oom GRNST,w/v rr sl ool dns chk PKST,sl anhy-dol,tt-mg intxl-tr alg-ool POR,fr-mg dull-bri yel FLOR,mfr-fr brn-rr blk STN,mg slow dif-tr mod fast stmg mlky CUT"

5570.00 5580.00 "LS wh-crm,tan-occ ltbrn,crpxl-micxl,micsuc-gran,pred thn chky plty PKST/scat-intbd sl ool GRNST,chky-sl anhy,v sl dol,POR-FLOR AA,tr-fr ltbrn STN,fr dif/v fnt res ring CUT"

5580.00 5590.00 "LS AA,pred PKST AA/thn intbd GRNST AA,POR-FLOR-STN-CUT AA"

5590.00 5610.00 "LS tan-ltbrn,wh-crm,micxl-crpxl,gran-micsuc ip,dns sl ool-chky plty PKST/occ gran tex,scat ool GRNST,sl anhy,tr blk styl-SH lam,rr tan CHT incl,tt-fr intxl-tr ool POR,fr-mg scat dull-m bri yel FLOR,g ltbrn/tr brn-rr blk pp dd o STN,mg slow stmg-dif CUT "

5610.00 5630.00 "LS,tn-crm-ofwht,occ crypt-pred mic-occ vf xl,mdns-dns mtx,pred chlky sl plty v sl ool PKST,v rr suc alg GRNST,tr chlky mat,sl anhy-tr ANHY xls,pred mf-intrxl to ool fab POR,scat mbri yelgld FLOR,n-vis-wk slo sl dif strmg CUT,tr blk dd o STN,tr ltbn o STN"

5630.00 5640.00 "LS AA,rr ltgy-ltbn CHT frgs,sl incr in ANHY xls/ofwht chlky mat,v rr reduced oom/ooc fab POR,FLOR AA,o STN AA,CUT AA,POR AA"

5630.00 5640.00 "LS,pred mdns v-sl ool chlky/anhy sl plty-plty PKST,v-rr sl ool oom/ooc chlky GRNST,rr CHT AA,sl anhy,chlky;pred m-intrxl to ool fab POR,scat mbri yelgld FLOR,tr blk dd o STN res,tr-ltbn o STN,no vis CUT"

5640.00 5650.00 "LS AA,FLOR AA,o STN AA,CUT AA,rr ltgy CHT frgs"

5650.00 5670.00 "LS,tn-crm-ofwht,v sl mot,tr crypt,mic-occ vf xln,mdns-tt mtx,sl plty-plty sl chlkyv-sl ool PKST,sl anhy,tr chlky mat,rr ltgy CHT frgs;pred mf-interxln to tr compact xln fab POR,no vis CUT,scat mbri yelgld FLOR,sl tr-ltbn o STN,tr spty blk dd o STN res"

5670.00 5690.00 "LS,ltbn-tn-crm-occ dkbn,occ crypt xl,mic-vf xl,mdns-dns mtx,occ tt mtx,pred v sl ool chlky dns to tt PKST,rr dkbn-blk SH lam,rr anhy xls,tr chlky lms;pred m intrxl to compact xl fab POR,scat mbri yelgld FLOR, v wk slo strmg sl milky ring CUT,tr ltbn"

DEPTH	LITHOLOGY

5690.00 5697.00 "LS AA,sl decr in CHT frgs,sl incr in ltbn o STN,pred m-mf intrxln fab POR,wk slo strmg sl dif/sl milky ring CUT,scat mbri yelgld FLOR"

5700.00 5720.00 "LS,tn-crm-occ offwht,v sl mot,mic-vf xln,mdns-sl grn mtx,pred vf xln mdns sl algal GRNST to mdns chlky PKST,tr anhy xls,v rr ltgy CHT frgs;pred interxln to poss alg-vug POR,scat mbri-bri yelgld FLOR,tr slo strmg sl dif CUT,pred tr-m ltbn o STN"

5720.00 5740.00 "LS AA,m-mf slo-tr fast strmg dif/milky ring CUT,m-ltbn o STN,tr blk dd o STN res,scat mbri-bri yelgld FLOR,pred mf-f intrxln to sl vug-tr oom to poss alg POR"

5740.00 5760.00 "LS,tn-crm,mic-vf xln,mdns-sl grn mtx ip,pred intrbd v-sl ool poss alg GRNST to mdns vf xln sl grn PCKST,chlky,anhy-rr ANHY xls,tr ofwht chlky mat,v-rr CHT frgs,v-sl dolo;POR AA,FLOR AA,CUT AA,o STN AA"

5760.00 5780.00 "LS AA,sl incr in grn mtx,pred v-sl ool chlky/anhy mdns poss alg GRNST,microsuc-to rr sucrosic mtx,rr dns-tt plty PCKST,v-rr ltgy CHT frgs;pred mf-f intrxl to sl vug-algal POR,v-rr pr oom POR,pred tr-m ltbn o STN,tr dd o STN res,mf-bri-mbri yelgld FLOR"

5780.00 5800.00 "LS,tn-crm-ltbn,mic-vf xln,rr cryt xl,mdns-grn mtx ip,tr microsucrosic mtx,v-sl dolo,pred mdns chlky pr-vug alg GRNST to PKST,v rr ool;FLOR AA,CUT AA,o STN AA,pred mf-f intrxln to pr-vug alg fab POR,v rr reduced oom fab POR"

5800.00 5820.00 "LS AA,ltbn-tn-crm,tr crypt,mic-vf xln,pred dns sl chlky PCKST,rr grn sl alg GRNST,tr cht frgs-ltgy,v sl anhy,tr chlky mat,v rr calc frac flgs;pred mf-f intrxln to vrr vud-alg POR,sl incr in comp xln fab POR,tr slo dif strmg CUT,tr ltbn-occ bn o STN"

5820.00 5840.00 "LS,incr in dns sl plty chlky v sl ool PCKST,v-rr vug v sl ool oom GRNST,decr in ltbn o STN,no vis-wk slo strmg v sl dif CUT,pred m-intrxln to compact xln,v rr vug-oom POR,scat mbri-bri yelgld FLOR,rr blk dd o STN res"

5840.00 5860.00 "LS AA,sl decr in dns PKST,scat bri-mbri yelgld FLOR,wk-tr slo strmg to m-fst strmg CUT,tr-mf ltbn o STN,rr dd blko STN res,pred mf-intrxln to v sl vug-alg fab POR"

5860.00 5880.00 "LS,tn-crm-occ,v sl mot,mic-vf xln,mdns-sl grn mtx,pred vf xln mdns sl algal GRNST to mdns chlky sl grn-occ plty PKST,tr anhy xls,v rr ltgy CHT frgs;pred interxln to rr-tr alg-vug POR,scat mbri-bri yelgld FLOR,tr slo strmg sl dif CUT,pred tr-mf ltbn o STN"

5880.00 5900.00 "LS tan,occ crm strk,ltbrn,tr wh,micxl-crpxl,occ gran-sl micsuc ip,pred dns-sl slty GRNST occ grdg to rthy PKST/gran tex,scat dns sl ool-dol PKST,sl chky-anhy/tr plty prtgs,rr agl mat,tt-mg intxl-rr pp vug POR,g even bri-mod bri"

5880.00 5900.00 "yel FLOR,mg ltbrn/tr brn-rr pp blk dd o STN,g mod fast-fast stmg mlky CUT"

DEPTH	LITHOLOGY

5900.00 5920.00 "LS tan/occ crm-off wh strk,occ ltbrn,rr brn,micxl-crpxl,occ vfxl-sl gran,rr sl micsuc,dns chky sl ool-agl PKST/tr rthy-sl gran tex,tr sl ool-agl chky GRNST,sl anhy/tr POR fl-rr xln ANHY,tr scat plty frag,tt-fr intxl/rr ool-pp"

5900.00 5920.00 "agl POR,tr scat mod bri-bri yel FLOR,fr ltbrn/rr brn & blk pp dd o STN,fr dif/tr slow stmg mlky CUT"

5920.00 5930.00 "LS AA,pred PCKST/tr GRNST AA,tr blk stly-SH lam,POR-FLOR-STN AA,fr-mg dif/fnt res ring-tr slow stmg mlky CUT"

5930.00 5950.00 "LS tan/tr crm-off wh incl,occ ltbrn-brn,micxl-crpxl,vfxl-sl gran-rr micsuc,pred dns chky sl ool-agl PKST/tr gran tex,rr ool GRNST frag,sl anhy/tr POR fl-rr xln ANHY incl,tr blk styl-SH lam,POR-FLOR AA,fr ltbrn-rr brn STN,fr-"

5930.00 5950.00 "mg dif/fr fnt res ring-tr slow stmg mlky CUT"

5950.00 5970.00 "LS AA,micxl-crpxl,occ vfxl-sl gran,rr micsuc,pred dns chky sl ool-agl PKST/tr gran tex,tr scat sl ool-agl GRNST frag,sl anhy/tr POR fl-xln ANHY incl,v rr blk styl-SH lam & wh-trnsl xl CALC,POR-FLOR-STN AA,p-fr dif/v fnt res ring CUT"

5970.00 5990.00 "LS tan/tr crm-off wh incl,occ ltbrn,tr brn,micxl-crpxl,vfxl,sl gran/rr micsuc,pred dns chky sl ool-agl PKST/tr gran tex,tr ool-sl agl GRNST frag,sl anhy/tr POR fl-xln ANHY incl,tr blk styl,fr-mg intxl/rr ool-pp vug POR,tr scat"

5970.00 5990.00 "mod bri-bri yel FLOR,fr ltbrn/tr brn STN,p dif/tr slow stmg mlky CUT"

5990.00 6010.00 "LS AA,dns chky sl ool-agl PKST/incr gran tex,incr scat-intbd sl ool-agl GRNST,sl anhy/tr POR fl-rr xln ANHY incl,rr trnsl xl CALC,g-fr intxl-sl ool/rr pp vug POR,g-mg scat bri-mod bri yel FLOR,fr ltbrn-rr brn STN,g mod fast-fast stmg mlky CUT"

6010.00 6020.00 "LS AA,pred dns sl ool-agl PKST/incr gran tex,occ grdg dns GRNST,incr scat sl ool-agl GRNST,sl anhy/tr POR fl-xl ANHY incl,mg -g mod bri-bri yel FLOR,g ltbrn/tr brn & rr blk pp dd o STN,g slow stmg mlky CUT"

6020.00 6040.00 "LS tan,tr ltbrn,wh-crm,rr brn,micxl-crpxl-vfxl,sl gran,rr micsuc,dns chky sl ool-agl PKST/tr gran tex,incr scat sl ool-agl GRNST,sl anhy/rr POR fl-xln ANHY incl,tr plty prtgs,rr blk styl,POR AA,incr FLOR AA,STN-CUT AA"

6040.00 6060.00 "LS tan/tr crm-off wh incl,occ ltbrn,rr brn,micxl-crpxl,vfxl-gran/rr micsuc,pred dns chky sl ool-agl PKST occ grdg to dns GRNST/scat sl ool-agl GRNST,sl anhy/tr POR fl-rr xln ANHY incl,fr-mg intxl/rr ool POR,fr scat mod bri yel FLOR,g mod fast stmg CUT"

DEPTH		LITHOLOGY

6060.00 6080.00 "LS AA,pred dns sl ool-agl/tr plty PKST occ grdg to dns GRNST,tr scat sl ool-agl GRNST,sl chky-anhy/tr POR fl-rr xln ANHY incl,rr xl CALC,tt-fr intxl/tr ool-agl POR,tr-fr scat mod bri yel FLOR,fr ltbrn STN,fr dif/fnt res ring-tr mod fast stmg mlky CUT"

6080.00 6100.00 "LS tan-ltbrn,crm-wh,tr brn,micxl-vfxl-crpxl,sl gran,pred dns-plty chky v sl ool PKST/occ gran tex,occ grdg to dns GRNST,tr sl ool-agl GRNST,sl anhy/sl incr POR fl,rr xl ANHY,rr tan CHT,tt-fr intxl/rr ool-agl POR,tr fnt dull yel FLOR,fr ltbrn"

6080.00 6100.00 "STN,p dif/v fnt res ring CUT"

6100.00 6120.00 "LS tan-ltbrn,crm-wh,occ brn,micxl-crpxl,vfxl-sl gran,pred PKST AA/tr gran tex-occ grdg to dns GRNST,tr sl ool-agl GRNST,sl anhy/tr POR fl-xl ANHY,rr tan-crm CHT,POR AA,tr fnt dull yel FLOR,fr ltbrn/tr brn STN,p dif/v fnt res ring CUT"

6120.00 6140.00 "LS AA,micxl-crpxl,vfxl-sl gran,pred dns v sl ool-incr thn plty chky PKST/sl gran tex,tr sl ool-agl GRNST,sl anhy/tr POR fl-rr xl ANHY,rr tan-crm CHT,POR-FLOR AA,fr ltbrn-brn STN,p dif/v fnt res ring CUT"

6140.00 6160.00 "LS tan-ltbrn,crm-wh,occ brn,micxl-crpxl,vfxl,tr gran,pred PKST AA/sl gran tex,tr sl ool-agl GRNST,sl anhy/tr POR fl-rr xl ANHY,rr CHT AA,tt-tr intxl-rr ool POR,no-rr v fnt dull yel-orng mnrl FLOR,fr ltbrn/tr brn STN,no-v p dif/v fnt res ring CUT"

6160.00 6180.00 "LS tan-ltbrn-brn,wh-crm,micxl-crpxl-vfxl,tr gran,pred chky dns v sl ool-thn plty PKST,tr-rr sl ool-occ dns GRNST,sl anhy/tr POR fl-xln ANHY,rr CHT AA,tt-tr intxl/v rr sl ool POR,no-rr dull yel FLOR,fr ltbrn/tr brn STN,CUT AA"

6180.00 6210.00 "LS ltbrn-tan-brn,wh-crm,micxl-crpxl-vfxl,tr gran,pred chky dns sl ool-incr thn plty PKST,rr sl ool-occ dns GRNST,sl anhy/tr POR fl-xln ANHY,tr CHT AA,tt-tr intxl/v rr sl ool-agl POR,no-rr dull yel FLOR,fr ltbrn/tr brn STN,v p dif/v fnt res ring CUT"

6210.00 6230.00 "LS,crm-tn-ltbn,v sl mott,mic-vf xl,rr crypt xl,pred mdns dns sl chlky PCKST,rr mdns GRNST,tr xln ANHY,rr ltgy CHT frgs,occ sl chlky ip;pred tt-m interxln fab POR,v-scat ltbn o STN,no vis CUT,v-spty mbri yelgld FLOR"

6230.00 6250.00 "LS AA,tn-crm,rr foss frgs,v sl ool,FLOR AA,o STN AA,rr blk dd o STN,pred interxln fab POR,rr compact xln POR"

6250.00 6270.00 "LS,tn-crm-ltbn,occ bn,mic-vf xl,mdns-dns mtx,sl incr in grn mtx to scat GRNST,pred sl chlky mdns rr foss v sl ool PCKST,incr in ltbn-bn o STN,tr dd blk o STN res,scat mbri-bri yelgld FLOR,pr slo strmg CUT,sl dif CUT"

DEPTH	LITHOLOGY

6270.00 6290.00 "LS tan,tr ltbrn,wh-crm,rr brn,micxl-crpxl-vfxl,sl gran,tr foss frgs,dns chky sl ool-agl PKST/tr gran tex,tr-xln ANHY incl,tr plty prtgs,rr blk styl,POR AA,incr FLOR AA,STN-CUT AA"

6290.00 6310.00 "LS AA,incr in foss frgs, incr in ool,pred intrbd PCKST AA to mdns sl ool foss GRNST,tr slo sl dif strmg CUT,pred m interxln fab POR,spty mbri yelgld FLOR,tr ltbn o STN"

6310.00 6330.00 "LS,incr in ool oom GRNST,decr in sl ool dns chlky PCKST,tr-mf ltbn o STN,tr dd blk o STN,m-dul-mbri yelgld FLOR,slo dif strmg CUT"

6330.00 6350.00 "LS,ltbn-tn-crm,occ ofwht,mic-vf xln,sl mot,mdns mtx,grn mtx-scat microsucr mtx,pred sl ool mdns oom GRNST,tr sl ool dns chlky PCKST;pred mf-intrxl to pr-mf oom to scat microsuc fab POR,tr-m slo strmg dif/milky ring CUT,tr-mf ltbn o STN,tr blk dd OSTN"

6350.00 6370.00 "LS,ltbn-tn-crm,sl mott,mic--vf xln,grn-mdns mtx,pred ool oom mdns GRNST, rr sl ool dns PCKST,rr foss frgs,tr ANHY xls,rr calc frac flgs;pred mf-interxln to pr-mf oom fab POR,tr-mf ltbn o STN,tr dkbn o STN,scat mbri-bri yelgld FLOR,slo dif milky CUT"

6370.00 6391.00 "LS,ltbn-tn,sl mott,pred vf xln,tr mic-rr crypt xln,pred sl ool pr devlp alg GRNST,tt sl plty dns PKST,tr foss frgs,sl ool,sl chlky/anhy;pred g-interxln to oom fab POR,mf ltbn-bn o STN w/tr blk dd o STN,mbri yelgld FLOR,mf slo dif-fst strmg CUT"

6390.00 6420.00 "LS,ltbn-tn-crm,sl mott,pred vf xl,rr mic xln,grn-suc-microsuc mtx,occ mdns mtx,pred sl ool oom GRNST,rr dns PCKST,sl anhy/chlky;pred g-intrxln to oom fab POR,m-mf mbri-dul yelgld FLOR,m-mf slo-f fst strmg CUT,mf-ltbn-occ bn w/tr blk dd o STN res"

6420.00 6450.00 "LS AA,pred f-g interxln to sl suc fab POR,pr-reduced to occ g oom fab POR,sl develp alg mat,rr calc frac flgs,rr ltgy CHT frgs,mf-dul-mbri to spty bri yelgld FLOR,mf-slo to f fst strmg dif-mlky ring CUT"

6450.00 6480.00 "LS,ltbn-tn-bn-crm,mott,vf xln,occ mdns-pred grn-suc mtx,pred ool rich GRNST,rr ool dns PCKST,rr ltgy-ltbn CHT frgs,sl anhy;pred ool to intrxln to scat oom fab POR,mf-f ltbn-bn o STN,tr blk dd o STN,g fst-mf-g slo strmg dif CUT,mf-f dul-spty yelgld FLOR"

6480.00 6510.00 "LS AA,pred ool intrxln to g-interxln fab POR,scat oom fab POR,microsuc-suc fab POR,even dul-spty mbri yelgld FLOR,mf-f g ltbn-bn o STN,tr dd blk o STN res,dif milky ring-fslo strmg-g-f strmg CUT"

6510.00 6540.00 "LS,ltbn-tn-bn,mott,pred vf xln,suc-microsuc-grn mtx,pred ool GRNST,rr cht frgs,tr xln ANHY,incr in o STN to f-g ltbn-bn,scat blk dd o STN res,pred ool intrxln to g intrxln to scat oom fab POR,even dul-mbri yelgld FLOR,mf-g strmg CUT"

DEPTH		LITHOLOGY

6540.00 6570.00 "LS,ltbn-tn-bn-crm,mott,vf xln,pred grn-suc mtx,pred ool rich oom GRNST,rr PCKST,v rrltbn CHT frgs,sl anhy;pred ool intrxl to g intrxln to v- scat oom fab POR,mf-g ltbn-bn o STN,tr blk dd o STN,g fst-mf-g slo strmg dif CUT,f dul-spty yelgld FLOR"

6570.00 6600.00 "LS AA,ltbn-bn-tn,vf xln,pred GRNST,mf-mg ltbn-bn to spty blk dd o STN res,pred ool-f to mg intrxln fab POR,even dul-spty mbri-bri yelgld FLOR,v rr ANHY xls"

6600.00 6630.00 "LS,ltbn-tn-bn,mott,pred vf xln,suc-microsuc-grn mtx,pred ool GRNST,rr cht frgs,tr xln ANHY,rr CHT frgs-ltgy,pred intrxln to ool POR g ltbn-bn,scat blk dd o STN res,pred ool intrxln to g intrxln to scat oom fab POR,even dul-mbri yelgld FLOR,mf-g strmg CUT"

6630.00 6660.00 "LS ltbrn-brn,occ tan,tr crm-wh,gran,micsuc-vfxl,tr micxl-crpxl,ool-sl oom GRNST,tr scat dns sl ool PKST,sl chky-anhy/tr POR fl-thn plty prtgs,rr xln ANHY,rr tan CHT incl,g ool-sl oom/rr intxl POR,g even mod bri-bri yel FLOR,g ltbrn-"

6630.00 6660.00 "brn/tr blk pp dd o STN,g fast stmg mlky CUT"

6660.00 6690.00 "LS AA,gran-micsuc,vfxl,occ micxl-tr crpxl,pred ool/scat sl oom-rr agl GRNST,tr scat dns chky sl ool-thn plty PKST,sl anhy/tr POR fl-rr xln ANHY,tr crm CHT incl,POR-FLOR AA,g ltbrn-brn/rr blk pp dd o STN,g fast stmg mlky CUT"

6690.00 6710.00 "LS AA,pred ool/sl oom-tr agl GRNST,tr scat dns sl chky-ool/sl incr thn plty PKST,sl anhy/tr POR fl-rr xln ANHY,tr tan-ltbrn CHT,g ool-sl oom/tr intxl POR,g even mod bri-bri yel FLOR,g ltbrn-brn/rr blk pp dd o STN,g fast stmg-sl blooming mlky CUT"

6710.00 6740.00 "LS ltbrn-tan,brn,tr crm-wh,gran,micsuc-vfxl,tr micxl-crpxl,ool-sl oom GRNST,sl incr scat dns sl ool PKST/tr gran tex,sl chky-anhy/tr POR fl-thn plty prtgs,tr CHT AA,rr xln ANHY,g ool-sl oom/tr intxl POR,g even mod bri-bri yel FLOR,STN-CUT AA"

6740.00 6760.00 "LS ltbrn-brn,occ tan,rr crm-wh,gran,micsuc-vfxl,tr micxl-crpxl,ool-sl oom GRNST,tr dns sl gran-v rr ool PKST,v sl chky-anhy/rr POR fl-thn plty prtgs,v rr xln ANHY,rr tan CHT incl,g ool-sl oom/rr intxl POR,FLOR AA,g brn-ltbrn/rr blk pp dd o STN,CUT AA"

6760.00 6790.00 "LS AA,gran-micsuc-vfxl,occ micxl,tr crpxl,pred ool/scat sl oom-rr agl GRNST,tr dns v sl ool PKST,sl chky-anhy/rr POR fl-xln ANHY,tr crm CHT incl,rr trnsl-wh rhmb xl CALC,POR AA/rr pp vug POR-FLOR AA,g brn-ltbrn/rr blk pp dd o STN,g fast stmg mlky CUT"

6790.00 6820.00 "LS ltbrn-tan-brn,tr crm-wh,vfxl-gran-micxl,occ crpxl,tr micsuc,pred ool-sl agl GRNST,incr intbd-scat dns sl chky-ool PKST/occ gran tex,sl anhy/tr POR fl-rr xln ANHY,rr thn plty prtgs,incr scat-intbd tan-ltbrn CHT,POR-FLOR AA,g"

DEPTH	LITHOLOGY

6790.00 6820.00 "ltbrn-scat brn/tr blk pp dd o STN,g fast-mod fast stmg mlky CUT"

6820.00 6850.00 "LS AA,pred ool-sl agl/tr sl oom GRNST,scat-occ intbd dns sl ool-chky PKST/occ dol strk,sl anhy/tr POR fl-rr xln ANHY,tr tan-ltbrn CHT,v rr thn plty prtgs,mg-g ool-intxl,v rr pp vug POR,g scat mod bri-bri yel FLOR,STN AA,g mod fast stmg-sl blooming CUT "

6850.00 6880.00 "LS tan-ltbrn,occ crm-wh,tr brn,vfxl-gran-micxl,crpxl,occ micsuc,ool-sl oom GRNST,scat-occ intbd dns sl ool PKST/gran tex-tr dol strk,sl chky-anhy/tr POR fl-rr xln ANHY,incr scat thn plty prtgs,rr CHT AA,g-mg ool-intxl/rr pp vug"

6850.00 6880.00 "POR,g scat mod bri-dull/tr bri yel FLOR,fr-mg ltbrn/tr brn-rr blk dd o STN,g mod fast-fast stmg mlky CUT"

6880.00 6910.00 "LS AA,vfxl-gran,micxl-sl micsuc,occ crpxl,pred ool-sl oom-agl GRNST/intbd-scat dns sl chky-ool PKST/occ gran tex-v sl dol ip,sl chky-anhy/tr POR fl-rr xln ANHY,v rr thn plty prtgs,POR-FLOR-STN AA,mg-fr slow/tr mod fast stmg mlky CUT"

6910.00 6950.00 "g-mg scat mod bri-dull yel FLOR,fr-mg ltbrn/rr brn-blk pp dd o STN,mg-g mod fast/tr slow stmg mlky CUT"

6910.00 6950.00 "LS tan-ltbrn,occ crm-wh,tr brn,vfxl-gran-sl micsuc,micxl-tr crpxl,pred ool-sl agl-oom GRNST/intbd-scat dns sl chky-ool PKST-occ gran tex & rr dol strk,sl anhy/tr POR fl-rr xln ANHY,tr thn plty prtgs,rr tan-ltbrn CHT,mg-g ool-fr intxl/rr pp vug POR,"

6950.00 6970.00 "LS AA,pred ool-sl agl-oom GRNST,intbd-scat dns sl chky-ool PKST-occ gran tex & rr dol strk,sl anhy/tr POR fl-rr xln ANHY,tr thn plty prtgs,rr crm-tan CHT,mg-g intxl-fr ool POR,FLOR-STN AA,g mod fast-slow stmg mlky CUT"

6970.00 7000.00 "LS AA,vfxl-gran-sl micsuc,micxl-tr crpxl,pred GRNST AA/intbd-scat dns sl chky-ool PKST-occ gran tex,sl anhy/tr POR fl-rr xln ANHY,sl dol ip,occ sl arg ip,rr plty prtgs,rr tan-ltbrn CHT,POR-FLOR-STN AA,g mod fast-slow stmg mlky CUT"

7000.00 7030.00 "LS tan-ltbrn,occ brn,tr crm-wh,vfxl-gran-micsuc,occ micxl-crpxl,ool-sl oom/tr agl GRNST,tr dns sl ool PKST/occ gran tex-tr dol strk,chky-sl anhy/tr POR fl-rr xln ANHY,tr crm-ltbrn CHT,mg ool-intxl/rr pp vug POR,g scat mod bri-dull yel FLOR,STN-CUT AA"

7030.00 7050.00 "LS AA,vfxl-gran-sl micsuc,micxl-crpxl,pred ool-sl agl GRNST,tr dns sl chky-ool PKST/occ gran tex & rr dol strk,sl anhy/tr POR fl-rr xln ANHY,tr thn plty prtgs,mg-g ool-tr intxl/rr pp vug POR,sl decr FLOR AA,mg-g ltbrn/tr brn-rr blk"

DEPTH		LITHOLOGY

7030.00 7050.00 "pp dd o STN,g fast-mod fast dif/tr fast stmg mlky CUT"

7050.00 7070.00 "LS AA,pred ool-sl oom GRNST/tr intbd-scat dns sl ool PKST/occ gran tex,sl chky-anhy/tr POR fl-xln ANHY,incr thn plty prtgs,v rr crm-tan CHT,mg-g ool-sl oom/fr intxl POR,g scat mod bri-dull/tr bri yel FLOR,g-fr ltbrn/rr brn-blk pp dd o STN,g mod fast CUT"

7070.00 7100.00 "dull/scat bri yel FLOR,g-mg ltbrn/tr brn-rr blk pp dd o STN,g mod fast-fast stmg mlky CUT"

7070.00 7100.00 "LS tan-ltbrn,occ crm-wh,tr brn,vfxl-gran-micsuc,occ micxl-crpxl,ool-sl oom/tr agl GRNST,tr dns sl ool-dol PKST/occ gran tex,sl chky-anhy/rr POR fl-xln ANHY,rr thn plty prtgs,v rr trnsl xl CALC,g ool-sl oom/tr intxl POR,g mod bri-"

7100.00 7140.00 "LS AA,vfxl-gran-micsuc,occ micxl-crpxl,pred GRNST AA/tr PKST AA,sl chky-anhy/rr POR fl-xln ANHY,rr plty prtgs,g ool-tr intxl/rr pp vug POR,g even mod bri-dull/scat bri yel FLOR,mg ltbrn/tr brn-blk pp dd o STN,g modfast-fast stmg mlky CUT"

7140.00 7170.00 "LS ltbrn-tan,occ brn,crm-wh,vfxl-gran,micsuc-occ micxl,tr crpxl,pred ool-sl oom/tr agl GRNST,tr dns sl ool PKST/occ gran tex-tr dol strk,sl chky-anhy/tr POR fl-xln ANHY,tr plty prtgs,tr brn CHT,g ool-sl oom/tr intxl POR,FLOR AA,g"

7140.00 7170.00 "ltbrn/tr brn-rr blk pp dd o STN,g fast stmg mlky CUT"

7170.00 7200.00 "LS ltbrn-tan,brn,tr crm-wh,gran,micsuc-vfxl,tr micxl-crpxl,ool-sl oom GRNST,sl incr scat dns sl ool PKST/tr gran tex,sl chky-anhy/tr POR fl-thn plty prtgs,tr CHT AA,rr xln ANHY,g ool-sl oom/tr intxl POR,g even mod bri-bri yel FLOR,STN-CUT AA"

7200.00 7238.00 "LS,ltbn-tn-bn,mott,pred vf xln,suc-microsuc-grn mtx,pred ool GRNST,rr cht frgs,tr xln ANHY,incr in o STN to f-g ltbn-bn,scat blk dd o STN res,pred ool intrxln to g intrxln to scat oom fab POR,even dul-mbri yelgld FLOR,mf-g strmg CUT"

FORMATION TOPS

OPERATOR: MOBIL
WELL NAME: RATHERFORD UNIT #16-23 SE 1-A HORIZONTAL LATERAL LEG #2

FORMATION NAME		SAMPLES MEASURED DEPTH	SAMPLES TRUE VERTICAL DEPTH	DATUM KB:4706'
LOWER ISMAY		5447'	5444'	-738'
GOTHIC SHALE		5522'	5504'	-798'
DESERT CREEK		5536'	5512'	-806'
DC 1-A ZONE		5557'	5521'	-815'

GEOLOGICAL SUMMARY

AND

ZONES OF INTEREST

The Mobil Exploration and Production U.S., Inc., Ratherford Unit #16-23 Southeast Horizontal Lateral Leg #2 was a re-entry of the Mobil Ratherford Unit #16-23 located in Section 16, T41S, R24E, and was sidetracked in a southeasterly direction from 5409' measured depth, 5408' true vertical depth, on July 19, 1998. The lateral reached a measured depth of 7238', true vertical depth of 5554.6' at total depth, with a horizontal displacement of 1700' and true vertical plane of 132.8 degrees on July 23, 1998 in the Desert Creek 1-A porosity bench. The curve and lateral were drilled with fresh water and brine water with polymer sweeps as the drilling fluid. The proposed target line was used as a reference point throughout the lateral and the gamma neutron log helped define contacts between formations and their members in the curve and lateral section.

The objectives of the Ratherford Unit #16-23 southeast lateral leg #2 were to penetrate and drill the lower payzone in the Desert Creek 1-A porosity bench, identify and define its lithology, facies, hydrocarbon and gas potential and to evaluate the effective porosity and permeability. It is noted here that the Desert Creek 1-A porosity bench has been divided into the upper and lower payzones by a defined hard streak that has developed between the 16-23 wellbore and the 16-34 wellbore. In this southeasterly direction the lower payzone has a better-developed porosity and will be targeted for drilling for the entire lateral. These objectives were met in the lower payzone of the Desert Creek 1-A porosity bench, which had a consistent lithology throughout the length of the lateral, a variety of carbonate facies, poor to fair hydrocarbon and gas shows and ineffective to effective porosity and permeability.

The curve portion of the lateral was completed on July 20, 1998 at a measured depth of 5600', true vertical depth of 5531', with a horizontal displacement of 66'. This placed the bit near the base of the hard streak that defines the upper and lower payzones of the 1-A porosity bench. The curve was started in the lower portion of the Upper Ismay before encountering the typical stratigraphic section of the Lower Ismay, Gothic Shale, Desert Creek and the 1-A porosity bench carbonate cycle of the Upper Paradox Formation.

The curve section began in the lower portion of the Upper Ismay carbonate cycle of the Upper Paradox Formation and was penetrated from a measured depth of 5409', true vertical depth 5408' to a measured depth of 5447', true vertical depth 5444.' The basal portion of the Upper Ismay Formation was an earthy to clean limestone. These carbonates were light brown, brown, dark brown, tan, cream, light gray to light gray brown, cryptocrystalline, microcrystalline to very fine crystalline, moderately dense, dense to tight, very slightly anhydritic, earthy, clean, slightly platy and occasionally very slightly silty. An increase in an argillaceous matrix and trace fragments of dark brown, microcrystalline, very slightly silty, argillaceous, slightly marly to marly dolomites was noted with depth. Associated with these carbonates were rare to trace amounts of light gray, tan, brown, dark brown chert fragments, crystalline anhydrite and off-white chalky calcareous matter. This interval of limestones had a tight intercrystalline to compact crystalline fabric porosity, no visible oil stain and cut and a very spotty poor dull yellow gold fluorescence. The contact between the Upper and Lower Ismay was defined by thin laminations of black dolomitic to calcareous shales, an increase in marly to limy marlstone, dolomites as described above and a decrease in penetration rate from the measured

depth of 5444' to a measured depth of 5447'. This basal shale member contact was approximately two feet thick in this southeasterly curve section.

The top of the Lower Ismay carbonate cycle of the Upper Paradox Formation was picked at a measured depth of 5447', true vertical depth 5444', based primarily on sample identification and a slight increase in the rate of penetration. This formation was predominately a dolomite grading to a dolomitic marlstone thinly interbedded with limestone when it was initially penetrated from a measured depth of 5447, true vertical depth 5444' to a measured depth of 5460', true vertical depth 5456'. The dolomites were brown to light gray brown, microcrystalline, and dense to tight, earthy to argillaceous, marly to limey, slightly silty and had no visible cut, oil stain and florescence. The thinly interbedded limestones associated with the dolomites were cream to brown, cryptocrystalline to microcrystalline, dense to tight, slightly silty, earthy, slightly chalky and had no visible cut, oil stain and florescence. Both the dolomites and limestones had a very poor intercrystalline fabric porosity development. From a measured depth of 5460', true vertical depth 5456' to a measured depth of 5522' true vertical depth 5504', the Lower Ismay became predominately a limestone thinly interbedded with dolomites and graded with depth to occasionally a limy siltstone. The limestones were tan, cream, white to light gray, cryptocrystalline to microcrystalline, moderately dense, dense to tight, earthy to chalky, slightly anhydritic, slightly silty to occasionally a micaceous limey siltstone, occasionally platy, slightly argillaceous to argillaceous and had no visible cut, oil stain and fluorescence. A tight intercrystalline fabric porosity was developed in these limestones. The thinly interbedded dolomites were tan, light brown, brown, cryptocrystalline to microcrystalline, moderately dense to dense, earthy to clean, slightly argillaceous to occasionally grading to dolomitic marlstone, slightly silty to silty and had no visible cut, oil stain and fluorescence. These dolomites had very poor intercrystalline fabric porosity development. Trace to rare black carbonaceous shale partings, trace light gray, gray to brown chert fragments and rare anhydrite crystals were associated with this carbonate cycle of the Lower Ismay.

The Gothic Shale was penetrated at a measured depth of 5522', true vertical depth 5504' and continued through to a measured depth of 5536', true vertical depth 5512' and was picked primarily by a decrease in penetration rate and cuttings. This member was eight feet thick and the shales were dark brown to black to dark gray black shale, carbonaceous, occasionally grainy to silty, soft to slightly firm, sooty, slightly fissile, subblocky to subplaty, calcareous to slightly dolomitic and slightly micaceous, with micro pyrite inclusions. Very thinly interbedded limestones and clean to very argillaceous dolomites were associated with this shale member and increased towards the top of the Desert Creek Member of the Upper Paradox Formation.

The top of the Desert Creek Member of the Upper Paradox Formation was picked at a measured depth of 5536', true vertical depth 5512' and was penetrated to a measured depth of 5557', true vertical depth 5521'. This transition zone was approximately nine feet thick. The top was picked based on an increase in penetration rate and carbonate rocks in the samples. The transition zone between the Gothic Shale and the top of the Desert Creek was thinly interbedded carbonaceous shales' as described above and limestone interbedded with thin dolomites. The limestones were cream, tan, light brown to brown, cryptocrystalline, microcrystalline to occasionally very fine crystalline, moderately dense, earthy to clean, slightly dolomitic, slightly anhydritic and graded to a slightly oolitic packstone near the top of the 1-A porosity bench. The thin dolomites were brown to gray brown, microcrystalline to occasionally cryptocrystalline, earthy to argillaceous, slightly marly and decreased towards the top of the 1-A porosity bench. This transition zone had a poor intercrystalline to a slight oolitic fabric porosity development, no visible to poor slow diffused cut, no visible to rare black to dark brown oil stain and no visible to a spotty dull to moderately bright yellow fluorescence.

The top of the Desert Creek 1-A porosity bench was encountered at a measured depth of 5557', true vertical depth of 5521', at a horizontal displacement of approximately 23' and was picked by a significant increase in the penetration rate. A grainstone facies was penetrated at this depth and defined the upper payzone of the 1-A porosity bench. These grainstones were tan, light brown, cream, microcrystalline to very fine crystalline, with a granular to slightly microsucrosic to sucrosic texture

and were very slightly dolomitic. These grainstones had trace amounts of anhydrite crystals, rare light brown chert, and trace to abundant *Ivanovia* algal development. This grainstone facies had a reduced to good oomoldic, oolicastic to moderately fair oolitic to algal to moderately good intercrystalline fabric porosity development. A fair brown, light brown, brown oil stain to traces of black bitchimum stain* filling casts, a fair bright to occasionally bright yellow-gold fluorescence and a fair slow streaming to trace fast diffused cut. The hard streak that defines the upper and lower payzones was penetrated at a measured depth of 5577', true vertical depth 5528', and its lithology was a slightly oolitic packstone facies. These packstones were cream, tan, and white to occasionally light brown, cryptocrystalline to microcrystalline, slightly chalky, dense to occasionally grainy, clean and very slightly anhydritic. This packstone facies had a moderately fair intercrystalline to trace oolitic fabric porosity, trace to moderately fair light brown oil stain, scattered dull to moderately bright yellow gold fluorescence and a moderately fair slow streaming cut. Some thinly interbedded oolitic grainstones were associated with this hard streak.

The curve portion of the lateral was completed at a measured depth of 5600', true vertical depth 5531', at a horizontal displacement of 66', bearing 132 degrees, with an inclination of 87.7 degrees, on July 20, 1998. At this point a trip was made to lay down the curve assembly and pickup the lateral assembly. The targeted lower payzone of the Desert Creek 1-A porosity bench was not penetrated at the time of the trip. It was thought that it would be penetrated some where between the true vertical depths of 5533' to 5535', so the bit was left at an angle of 87-88 degrees with the hope of penetrating it once the lateral assembly was back on bottom.

Drilling resumed July 21, 1998, after the trip was made for the lateral assembly, in the hard streak of the Desert Creek 1-A porosity bench of the Upper Paradox Formation. Sliding to control vertical depth, horizontal plane direction and to put the lateral assembly out far enough to begin rotating was required. Starting at a measured depth of 5600', true vertical depth 5530.7' to a measured depth of 5697', true vertical depth 5535.5', the hard streak of dense slightly oolitic packstone that defines the upper and lower payzones in the 1-A porosity bench was penetrated. This packstone facies was tan, cream, light brown, off-white and occasionally brown, very slightly mottled, cryptocrystalline to very fine crystalline, moderately dense to dense, clean, slightly chalky to chalky, slightly anhydritic and slightly oolitic. Trace amounts of anhydrite crystals, off-white chalky matter, and light gray to light brown chert fragments and black to dark brown carbonaceous shale partings. This packstone facies had a trace to moderate light brown to spotty black dead oil stain, a scattered moderately bright to bright yellow gold fluorescence and predominately a moderate intercrystalline fabric porosity. Associated with the packstone facies were some thinly interbedded slightly developed algal developed grainstones. The lithology for the grainstone facies was light brown and tan, very fine crystalline, moderately dense, slightly oolitic, and slightly chalky and had slight algal development. A poor reduced oomoldic to microsucrosic, occasionally sucrosic to fair intercrystalline fabric porosity was developed in these carbonates, a moderately bright to bright yellow gold fluorescence and a moderately fair to fair light brown oil stain with a trace amount of black dead oil stain. The oil stain appears to be flushed; this is due to the well being previously injected.

The top of the lower payzone of the 1-A porosity bench was penetrated at a measured depth of 5697', true vertical depth 5535.3 to a measured depth 6066', true vertical depth 5547'. While penetrating this interval of carbonates the bottom of the hard streak was encountered at a measured depth 5830, true vertical depth 5838', forcing the bit to dive across the zone at 86 degrees before being brought back to horizontal near the base of the 1-A porosity bench. The lithology through this interval was a slightly oolitic dense packstone interbedded with a slightly oolitic oomoldic to oolicastic poorly developed algal grainstone. The packstone facies was tan to cream, moderately dense to dense, microcrystalline to very fine crystalline, chalky, slightly anhydritic, with a moderately fair to fair intercrystalline fabric porosity. The slightly developed algal grainstone facies was light brown to tan, microcrystalline to very fine crystalline, moderately dense to occasionally grainy and microsucrosic. These grainstones had a reduced to good oomoldic, oolicastic to algal or sucrosic/microsucrosic fabric porosity development, a moderately fair to fair light brown to brown oil stain, a moderately bright

fluorescence, and a moderate to moderately fair slow diffused cut. Associated with these carbonates were crystalline anhydrite, off-white chalky matter, rare black carbonaceous shale partings, rare to trace light brown chert fragments.

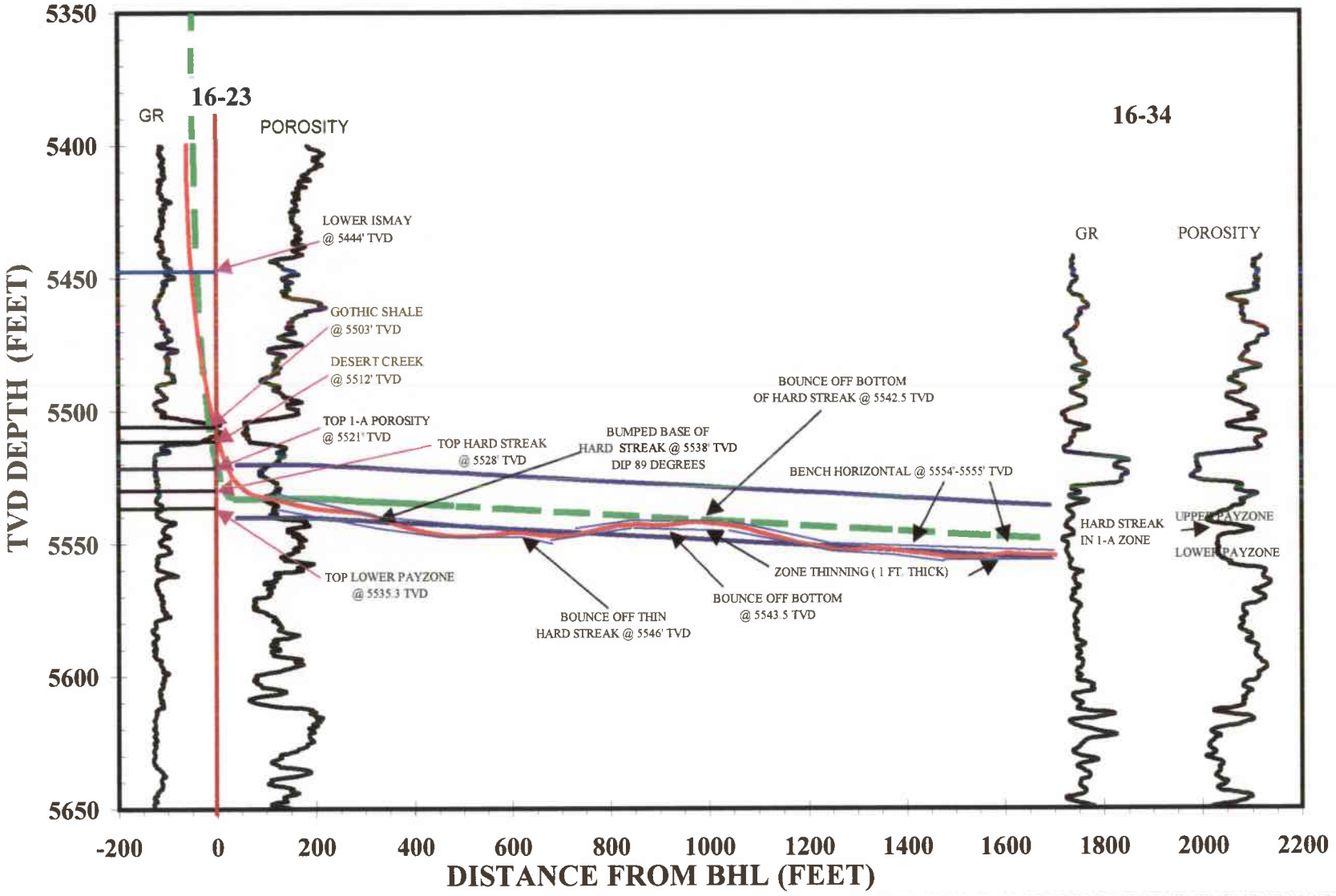
At a measured depth of 6066', true vertical depth 5547', the bit began to slowly walk right indicating that the bottom of the 1-A porosity bench was beginning to be penetrated. The bit was oriented up and reacquired the lower payzone at a measured depth of 6296', true vertical depth 5545'. The carbonates drilled from 6066' measured depth to 6296' measured depth were the typical dense to tight slightly oolitic occasionally chalky packstone facies. These packstones had tight to moderately fair intercrystalline to compact crystalline fabric porosity development, with a weak to no visible light brown oil stain, no visible to weak streaming cut and a poor spotty dull to moderately bright yellow fluorescence.

The remainder of the southeast lateral from a measured depth of 6296', true vertical depth 5545' to the total depth of 7238', true vertical depth 5554', was predominately an oolitic rich grainstone facies with very thinly interbedded slightly oolitic packstones. Throughout this interval the lower payzone ranged in thickness from one to two feet. The bit bumped the bottom of the hard streak and the bottom of the bench numerous times, but because of the tight crystalline lithology of their packstone facies, the bit stayed in porosity and maintained a less then a minute penetration rate for approximately 950'. The one to two foot bench was not horizontal as expected. It dropped nine feet over 950' and appeared to continue to drop even when the total depth was reached at 1700'. The grainstones through this interval were light brown, tan and cream, predominately very fine crystalline to occasionally microcrystalline, moderately dense to grainy with a slightly sucrosic matrix in part. These grainstones had a slight algal development, rare to trace amounts of calcite fracture fill, anhydrite and calcite cast fillings, off-white chalky matter, rare to trace light brown, cream to translucent chert fragments and were occasionally slightly silty, chalky and anhydritic. Porosity for this grainstone facies was fair to good intercrystalline to oolitic fabric porosity development with scattered amounts of oomoldic to interoolitic fabric porosity development. A moderately fair to good light brown to brown with trace black dead oil stain, a good dull to spotty moderately bright to bright yellow gold fluorescence and a good fast to moderately fair to fair slow streaming milky ring cut was observed with this carbonate facies. The thinly interbedded packstone facies was light brown, tan to cream, cryptocrystalline to microcrystalline, dense to tight, slightly anhydritic, chalky to slightly chalky, slightly oolitic, and contained rare oolitic inclusions. Predominately a poor to moderate intercrystalline to tight compact crystalline fabric porosity was developed in these carbonates. Staining was a poor light brown color, the cut was weak and fluorescence was a dull yellow.

From the beginning of the 16-23 southeast lateral leg#2 to its termination on July 23, 1998, at a measured depth of 7238', 5554.0 true vertical depth and a horizontal displacement of 1700.7', the lithology remained consistent for what is defined in the Desert Creek 1-A porosity bench. For what is expected in an injection well i.e. flushed samples, sample shows remained moderately fair to good throughout the lateral and only decreased when the bit neared the bottom of the lower payzone in the 1-A porosity bench. Porosity was predominately intercrystalline, oomoldic, oolicastic, interoolitic and occasionally had some *Ivanovia* algal development. This re-entry of the 16-23 wellbore may help in the development and production in the Ratherford Unit and will enhance the overall performance of the zone after treatment and returning the well to the water flood plan.

*The black residual staining has been called by Dr. Dave Eby & others as "bitchimum" and is also known as "dead oil" ("dd o stn" on mud logs). This staining is associated with the movement of oil over long periods of time and is a good indicator of producible hydrocarbons when associated with productive porosities, but can also be found in porosities that have been filled by anhydrites and other material at later dates.

MOBIL, Ratherford #16-23, Southeast Lateral



Form 3160-4
(July 1992)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPLICATE (See other instructions on reverse side)

FORM APPROVED
OMB NO. 1004-0137
Expires: February 28, 1995

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO.: 14-20-603-355

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: NAVAJO TRIBAL

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ DRY ☐ Other X INJECTOR

b. TYPE OF COMPLETION: NEW WELL ☐ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other X SIDETRACK

7. UNIT AGREEMENT NAME: RATHERFORD UNIT

2. NAME OF OPERATOR: MOBIL PRODUCING TX & NM INC.*
*MOBIL EXPLORATION & PRODUCING US INC. AS AGENT FOR MPTM

8. FARM OR LEASE NAME, WELL NO.: RATHERFORD 16-W-23

3. ADDRESS AND TELEPHONE NO.: P.O. Box 633, Midland TX 79702 (915) 688-2585

9. API WELL NO.: 43-037-15722

4. LOCATION OF WELL (*Report location clearly and in accordance with any State requirements*)*
At surface: (NE/SW) 1980' FSL & 1980' FWL
At top prod. interval reported below: LAT #1A1, 1261' FNL & 1141' FWL
At total depth: LAT #2A1, 1184' FSL & 1222' FEL

10. FIELD AND POOL, OR WILDCAT: GREATER ANETH

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: SEC. 16, T41S, R24E

14. PERMIT NO.	DATE ISSUED	12. COUNTY OR PARISH	13. STATE
NA	11-1958 ORIG	SAN JUAN	UT

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (*Ready to prod.*)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
7-09-98	7-24-98	8-12-98	4693.8 GR	

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY →	ROTARY TOOLS	CABLE TOOLS
*#24	*#24			X	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION - TOP, BOTTOM, NAME (MD AND TVD)*
LAT #1A1 (5424-7129' TMD)(5423- 5520' TVD), LAT #2A1 (5408-7238' TMD)(5409-5558' TVD)

25. WAS DIRECTIONAL SURVEY MADE: YES

26. TYPE ELECTRIC AND OTHER LOGS RUN: NO

27. WAS WELL CORED: NO

28. CASING RECORD (*Report all strings set in well*)

CASING SIZE/GRADE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	TOP OF CEMENT, CEMENTING RECORD	AMOUNT PULLED
13 3/8"	27.1#	173'	17 1/2"	SURFACE -- 175 SACKS	
8 5/8"	24#	1499'	11"	SURFACE --125 SXS	
5 1/2"	14#	5742'	7 7/8"	-- 232 SXS	
	ORIGINAL	CASING	UNDISTURBED		

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2 3/8"		5251'

31. PERFORATION RECORD (*Interval, size and number*)

RECEIVED
NOV 02 1998
DIV OF OIL, GAS & MINING

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
5534-7125'	LAT #1A1, ACIDIZE W/21840 GALS 15% HCL ACID
5583-7238'	LAT #2A1, ACIDIZE W/23394 GALS 15% HCL ACID

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (*Flowing, gas lift, pumping - size and type of pump*)	WELL STATUS (*Producing or shut-in*)
8-12-98		INJECTOR

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL - BBL.	GAS - MCF.	WATER - BBL.	GAS - OIL RATIO
10/98						550	

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL - BBL.	GAS - MCF.	WATER - BBL.	OIL GRAVITY - API (CORR.)
0						

34. DISPOSITION OF GAS (*Sold, used for fuel, vented, etc.*)

TEST WITNESSED BY

35. LIST OF ATTACHMENTS
DIRECTIONAL SURVEY

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED Shirley Houchins for TITLE SHIRLEY HOUCHINS/ENV & REG TECH DATE 10-28-98

*(See Instructions and Spaces for Additional Data on Reverse Side)

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdicton.

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT - " for such proposals

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.: 14-20-603-355
6. If Indian, Allottee or Tribe Name: NAVAJO TRIBAL
7. If Unit or CA, Agreement Designation: RATHERFORD UNIT
8. Well Name and No.: RATHERFORD 16-W-23
9. API Well No.: 43-037-15722
10. Field and Pool, or exploratory Area: GREATER ANETH
11. County or Parish, State: SAN JUAN UT

1. Type of Well: [ ] Oil Well [ ] Gas Well [X] Other
2. Name of Operator: MOBIL PRODUCING TX & NM INC.*
*MOBIL EXPLORATION & PRODUCING US INC. AS AGENT FOR MPTM
3. Address and Telephone No.: P.O. Box 633, Midland TX 79702 (915) 688-2585
4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
SEC. 16, T41S, R24E
(NE/SW) 1980' FSL & 1980' FWL

12. CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION	
[ ] Notice of Intent	[ ] Abandonment	[ ] Change of Plans
[X] Subsequent Report	[ ] Recompletion	[ ] New Construction
[ ] Final Abandonment Notice	[ ] Plugging Back	[ ] Non-Routine Fracturing
	[ ] Casing Repair	[ ] Water Shut-Off
	[ ] Altering Casing	[ ] Conversion to Injection
	[X] Other INJECTOR/SIDETRACK	[ ] Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

BHL:

LATERAL #1; 1261' NORTH & 1141' WEST FROM SURFACE SPOT (ZONE 1a).
LATERAL #2; 1184' SOUTH & 1222' EAST FROM SURFACE SPOT (ZONE 1a).

SEE ATTACHED PROCEDURE (JULY 9, 1998 -- AUGUST 12, 1998).

ACTUAL BOTTOM-HOLE LOCATIONS:
LATERAL 1 -- 2039 FNL 0839 FWL SEC 16, T41S, R24E
LATERAL 2 -- 0796 FSL 2078 FEL SEC 16, T41S, R24E

RECEIVED
NOV 02 1998
DIV. OF OIL, GAS & MINING

14. I hereby certify that the foregoing is true and correct
Signed [signature] for Title SHIRLEY HOUCHINS/ENV & REG TECH Date 10-28-98

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____
Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

* See Instruction on Reverse Side

ATTACHMENT - FORM 3160 - 5
RATHERFORD UNIT - WELL #16-W-23
14-20-603-355
NAVAJO TRIBAL
SAN JUAN, UTAH

7-9-98	NOTIFIED NAVAJO EPA ON 7-6-98 TALKED TO CHARMAINE HESTEEN ON THE INTENT TO DIG & LINE WORK PIT ON 16-23 TIME CALLED 11:18. NOTIFIED BLM ON 7-6-98 @ 11:20 TALKED TO WAYNE TOWNSEND ON THE INTENT TO MIRU & PREP FOR WELL HORIZ. DRLG. MIRU NAVAJO WEST DDPU #36. RU ATTEMPT TO PUMP DN TBG PSI TO 1500# TO KILL TBG. NIP WELL HEAD BOLTS UNABLE TO PULL WELDER CUT BOWL. HEATED & BACKED OUT BOWL LOCK NUTS & CUT BOWL & SLIPS OUT. NIP UP BOP/HYDRIL/STRIPPER. ATTEMPT TO REL PKG TURNED/PULLED & COWBOYED ON PKR NO SUCCESS. HOOK TBG BACK TO TEST TANK SDFN LEFT FLOWING TO TEST.
7-10-98	RU WEATHERFORD WL RAN FREE POINT FOUND TBG FREE TO PKR. WORKED ON PKR TO FREE. PUMP 10# BRINE TO KILL PSI TO 1000#. POOH LAY DN 2.875" TBG. RU SCHLUMBERGER RAN. GAGE RING/GUNK BSK 5470', RAN MULTI-FREQUENCY ELECTROMAGNETIC THICKNESS LOG FM 5500-SURF RAN 5.5" GUIB. WL SET RBP & SET @ 5400' RD SCHL.
7-11-98	CLOSED BLIND. TEST RBP/5.5" CSG TO 1000# FOR 30 MIN HELD OK REL PSI. RIG DN FLOOR/TOOLS NIP DN HYDRIL/BOP/TBG HEAD. REM TBG HEAD SPEARED 5.5" CSG PLD OFF SLIPS SET SLIPS, CUT & DRESS 5.5" CSG FOR NWE HEAD INST TBG HEAD TEST TO 1000# OK INST TBG FLANGE W/2" BALL VALVE SI. RIG DN REL PIT LINES TO TANK RIG DN UNIT CLR & CLN LOC. FOR HORIZ RIG. FINAL PREP REPORT.
7-13-98	MOVE IN MONTEZUMA 25, 25% RU. NOTIFIED JIM THOMPSON W/ STATE UTAH @ 6:00 AM. 7-13-98 ABOUT STARTING DRLG OPER.
7-14-98	FINISHED RU. NU BOP, MUD GAS SEP, CHOKE. SGL JACK RAN PRESS TEST, 2000# HIGH, 200# LOW, REPL BLIND RAMS, ALL TESTED OK. RIH W/ RET TOOL, 2.875" AOHDP, CAUGHT & REL RBP @ 5400. BLEED PRESS OFF. POH W/ RBP. SCHL RAN 5-1/2" BORE WHIPSTOCK PKR, SET PKG @ 5433. ORIENT UBHO SUB TO ANCHOR LATCH ASSY.
7-15-98	RIH W/ ANCHOR LATCH ASSY, 2.875" AOHDP, LATCHED INTO PKR @ 5433'. GYRO DATA RAN GYRO, PKR KEYWAY 261 GTF RAN GYRO SURVEY FROM 5420 - 200'. POH W/ANCHOR LATCH. FINAL REPORT FOR RE-ENTRY.
7-15-98	RIH W/TIW ANCHOR LATCH ASSY, WEATHERFORD WHIPSTOCK, STARTER MILL, 2.875" AOHDP, LATCH INTO TIW PKR @ 5433' W/KEYWAY @ 261, OF WHIPSTOCK @5418' W/FACE @ 317 DEG. MILLED WINDOW FORM 5418-5420', CIRC CLN. POH W/STARTER MILL, RIH WINDOW & WATERMELLON. MILLS ON SAME BHA. MILLED WINDOW FORM 5420-5424' & CUT 4" OF FORMATION, PUMPED POLYMER SWEEP & CIRC CLN. POH W/MILLS. ORIENT MUD MOTOR & MWD. FINAL REPORT FOR LATERAL 1.
7-16-98	RIH W/BIT. PH-6 TBG, & 2.875" AOHDP, RU GYRO DATA. RIH W/GYRO. SLIDE DRILLED CURVE 1 W/GYRO FROM 5424-5454', POH W/GYRO. SLIDE DRILLED CURVE 1A1 W/MWD FROM 5454-5578' TMD, 90 ANGLE 333 DIRECTION, 5522' TVD, 155 VS.
7-17-98	POH W/CURVE ASSY. RIH W/BIT, 2.875" PH-6 TBG, 2.875" AOHDP. RU SWIVEL & BREAK CIRC, NO H_2S. SLIDE & ROTATE DRILLED LATERAL 1A1 FROM 5578-6210'.
7-18-98	SLIDE & ROTATE DRILLED LATERAL 1A1 FROM 6210-7125 'TMD, 91.8 ANGLE, 319 DIRECTION, 5520' TVD, 1700 VS. PUMPED SWEEP & CIRC HOLE CLN.

ATTACHMENT - FORM 3160 - 5
RATHERFORD UNIT - WELL #16-W-23
14-20-603-355
NAVAJO TRIBAL
SAN JUAN, UTAH

7-19-98	RIH W/ SUPERHOOK, CAUGHT & SHEARED LATERAL 1A1 WHIPSTOCK @ 5418. POH W/WHIPSTOCK. FINAL REPORT FOR LATERAL 1A1.
7-19-98	RIH W/TIW ANCHOR LATCH ASSY, WEATHERFORD WHIPSTOCK, 2.875" AOHDP, LATCHED INTO TIW PKR @ 5433' GTF @ 261 W/TOP OF WHIPSTOCK @ 5402 W/ FACE OF SLIDE @ 132 DEG, SHEAR OFF BOLT. MILLED WINDOW W/STARTER MILL FROM 5402-5404, CIRC CLN. POH W/ STARTER MILL. RIH W/WINDOW & WATERMELLON MILLS ON SAME BHA. MILLED WINDOW FROM 5402-5408' & FORMATION TO 5409'. PUMPED POLYMER SWEEP & CIRC CLN. POH W/MILLS. FINAL REPORT FOR LATERAL #2.
7-20-98	POH & LD MILLS. RIH BIT, PH-6 TBG, & 2.875" AOHDP. RU & RIH W/GYRO DATA. SLIDE DRILLED CURVE 2A1 W/GYRO FROM 5409-5437', HIGH SIDE W/MWD. POH W/GYRO. SLIDE DRILLED CURVE 2A1 W/MWD FROM 5437-5540'.
7-21-98	SLIDE DRILLED CURVE 2A1 W/ MWD FROM 5540-5600' MD. 5530.72' TVD, POH & LD AOHDP, LD CURVE ASSY. RIH W/BIT, 2.875" PH-6 TBG, & 2.875" AOHDP. SLIDE DRILLED LATERAL 2A1 FROM 5600-5610'. SLIDE & ROTATE DRILLED LATERAL 2A1 FROM 5610-5945'. (LAST SURVEY AT 5906' TMD, 86.90 ANGLE, 131.50 AZ., 5543' TVD, 370.23 VS)
7-22-98	SLIDE/ROTATE DRILL AND SURVEYS FROM 5945'-6700' (LAST SURVEY AT 6634' MD, 86-70 ANGLE, 131.50 AZ., 5545.62 TVD, 1097.49 VS).
7-23-98	SLIDE/ROTATE DRILL AND SURVEYS FROM 6700-7238' TMD (TD). 5554.66 TVD, PUMP AND CIRC SWEEP. POOH TO WINDOW. DISPLACE HOLE W/10# BRINE. POOH AND LAY DOWN SPERRY SUN TOOLS, RIH. PH-6 TBG., GUIB. PKR., AND AOHDP TO 5583'. (PKR AT 5581'/WINDOW AT 5402'/TAILPIPE AT 5583'/END OF CURVE AT 5600'). SET PKR. AND TEST TO 600 PSI. POOH LAYING DOWN DRILLSTRING.
7-24-98	FINISH LAYING DOWN DRILLSTRING. START RIGGING DOWN. FINAL REPORT PENDING COMPLETION.

COMPLETION:

8-3-98	MIRU NAVAJO WEST DDPU #36. SICP 0# NIP DN WELL HEAD INST BOP/HYDRIL. RU PUMP/PIT/LINES. RIH W/GUIB. 5.5" ON/OFF TOOL 2.875" PH-6 TBG. PKR @ 5381 EOT @ 5583'. CIRC WELL BORE TEST TO 500# OK. RU TEFTELLER SL UNIT FISHED 1.87 "F" PLUG. PREPARE TO STIM 2A1 LATERAL
8-4-98	MI RU DOWELL EQUIP/COIL TBG UNIT. RIH W/ COIL TBG SPOT ACID, FLOWED TO CLN UP STIM. LATERAL 2A1 FM 7238-5583' W/ 23,394 GALS 15% HCL ACID. RD DOWELL, LEFT WELL OPEN NO FLOW SWISDFN.
8-5-98	SITP @ 6:00 AM 100#. PUMP 10# BRINE DN TBG ON VAC, REL PKR. POH W/TBG NO PKR. POH W/ TBG NO PKR. RIH W/ ON/OFF TOOL FOUND PKR @ 5232 20'. POH W/ TBG LAY DN PKR TAIL PIPE. RIH W/ WEATHERFORD SUPERHOOK ON 2.875" PH-6 TBG TO 5424'. FISH & JARED WHIPSTOCK FREE. POH W/ WHIPSTOCK, LAY DN EXT. MAKE UP TIW LATCH IN ASSM./DEBRE SUB/WHIPSTOCK ORIENT TOOL FACE. RIH W/TOOLS INTO TIW PKR @ 5433' SHEARED OUT. POH W/ SETTING TOOL. RIH W/ 2.875" PH-6 5.5" GUIB. PKR ON 2.875" TBG. SET PKR @ 5234' EOT @ 5543'. LOAD & TEST CSG TO 500# OK SWISDFN.
8-6-98	SITP 20# MIRU DOWELL EQUIP RIH COIL TBG, ACIDIZED LATERAL 1A1 FM 7125-5534' W/ 21840 GALS 15% HCL ACID. POH W/ COIL TBG SI, RD DOWELL EQUIP. OPEN WELL FLOWED BACK 1/2 BBL WTR/N2 DIED SWISDFN.

ATTACHMENT - FORM 3160 - 5
RATHERFORD UNIT - WELL #16-W-23
14-20-603-355
NAVAJO TRIBAL
SAN JUAN, UTAH

8-7-98	16.5 HRS SITP 80#, REL PKR. POH W/ PKR/TAIL PIPE. RIH W/ WEATHERFORD SUPERHOOK FISH 1A1 RE-ENTRY GUIDE. POH W/ 1A1 RE-ENTRY GUIDE. PU 2A1 RE-ENTRY GUIDE ORIENT TOOL FACE. RIH W/ 2A1 RE-ENTRY GUIDE LANDED & SHEARED OUT. POH W/ SETTING TOOL. RIH W/ 2.875" PH-6 TBG. FINISHED RIH W/TBG EOT @ 5568' SWISDFN.
8-8-98	MIRU DOWELL EQUIP. RIH W/ COIL TBG TO 7238' PULLED BACK TO 7200'. DOWELL MIXED 50 SX. CL "G" + .7% B14 + .1% D65 + 1.5% GAS BLOCK MIXED @ 15.8# YIELD 1.15 SPOTTED FROM 7200-6835' TTP 200# STARTED 50# AVG OPEN ON BACKSIDE TBG PUMPED & HELD 50# @ 1/8 BPM ON 16-34 DARNING SPOT JOB ON 16-23 PUMPED IT @ 1 BPM SITP ON 16-23 0# SITP ON 16-34 50# PUMP TOTAL 50 BBL F/WTR JOB COMPLETE @ 13:30 OUT HOLE. RIG DN DOWELL MOVE OUT. SITP 0# SICP 300# BLED OFF GAS STARTED FLOWING OIL/GAS SWISDFN & SUNDAY TO LET CMT SET.
8-10-98	SICP 300# KILL W/30 BBLS BRINE. POH W/ PH-6 TBG. RIH W/ WEATHERFORD RE-ENTRY RET TOOL ON 2.875" WS TBG FISH REL. WELL CAME IN KILLED W/ 40 BBLS BRINE. POH W/ RE-ENTRY GUIDE LAY DN SAME. PU RIH W/ GUIB. 5.5" INJ PKR W/ PUMP OUT PLUG ON 2.875" PH-6 WORKSTRING TBG SET PKR @ 5250'. POH LAY DN 2.875" PH-6 TBG ON FLOAT SWISDFN.
8-11-98	11.5 HRS SITP 20# CSG 20#, POH FINISHED LAY DN 2.875" WORKSTRING. RU TOOL TO RUN 2.875" CMT LINE INJ TBG RIH W/ ATTEMPT TO DRIFT LAY DN 5-JTS CHANGED DRIFT FM 2" TO 1.90. REPL AIR VALVE ON RIG CLUTCH. CONT. PU TALLY /DRIFT 2.875" CMT LINE TBG IN HOLE, TAG NEED 22' TO SPACE OUT WITH SWISDFN.
8-12-98	SI TBG/CSG 0#. NIP DN HYDRIL/BOP INST RAPAROUND. PUMP F-WTR. 2.3/8" X 5.5" GUIB. G-VI PKR @ 5251.36. TEST TO 1000# 30 MIN OK, RIG DN CLN LOC. FINAL REPORT.

Mobil

San Juan County
Utah
Ratherford Unit
RU 16-23 - MWD Survey Leg #1

SURVEY REPORT

31 July, 1998

sperry-sun
DRILLING SERVICES
A DIVISION OF [illegible]

Survey Ref: svy3010

Sperry-Sun Drilling Services

Survey Report for RU 16-23

Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
Gyro							
0.00	0.000	0.000	0.00	0.00 N	0.00 E	0.00	
200.00	0.330	314.330	200.00	0.40 N	0.41 W	0.58	0.165
400.00	0.450	305.380	399.99	1.26 N	1.46 W	1.92	0.067
600.00	0.710	300.720	599.98	2.35 N	3.17 W	3.88	0.132
800.00	0.970	307.070	799.96	4.00 N	5.59 W	6.74	0.138
1000.00	1.410	293.150	999.92	5.99 N	9.20 W	10.65	0.262
1200.00	1.480	292.590	1199.86	7.95 N	13.85 W	15.26	0.036
1400.00	1.510	288.830	1399.79	9.79 N	18.73 W	19.93	0.051
1600.00	1.400	288.590	1599.72	11.42 N	23.54 W	24.40	0.055
1800.00	1.100	279.140	1799.68	12.50 N	27.75 W	28.07	0.182
2000.00	1.050	282.590	1999.64	13.21 N	31.43 W	31.10	0.041
2200.00	1.260	298.330	2199.60	14.65 N	35.15 W	34.69	0.189
2400.00	1.210	303.130	2399.55	16.85 N	38.86 W	38.82	0.057
2600.00	1.120	286.340	2599.51	18.55 N	42.50 W	42.56	0.176
2800.00	1.010	311.030	2799.48	20.26 N	45.71 W	45.99	0.234
3000.00	0.810	313.690	2999.45	22.39 N	48.06 W	49.15	0.102
3200.00	0.710	313.630	3199.44	24.23 N	49.98 W	51.80	0.050
3400.00	0.500	337.130	3399.43	25.88 N	51.21 W	53.86	0.160
3600.00	0.400	334.130	3599.42	27.32 N	51.86 W	55.35	0.051
3800.00	0.290	30.600	3799.42	28.38 N	51.91 W	56.16	0.170
4000.00	0.220	80.770	3999.41	28.88 N	51.27 W	56.09	0.113
4200.00	0.260	67.610	4199.41	29.11 N	50.47 W	55.71	0.034
4400.00	0.010	235.600	4399.41	29.28 N	50.06 W	55.55	0.135
4600.00	0.180	250.610	4599.41	29.16 N	50.38 W	55.68	0.085
4800.00	0.330	281.760	4799.41	29.17 N	51.24 W	56.28	0.100
5000.00	0.360	269.490	4999.41	29.29 N	52.43 W	57.17	0.040
5200.00	0.630	261.530	5199.40	29.12 N	54.14 W	58.22	0.139
5400.00	0.800	270.920	5399.38	28.98 N	56.63 W	59.81	0.103
MWD Survey Leg #1							
5418.00	0.570	275.380	5417.38	28.99 N	56.84 W	59.97	1.311
5424.00	2.800	317.000	5423.38	29.10 N	56.97 W	60.14	40.064
5434.00	7.700	328.400	5433.33	29.85 N	57.49 W	61.04	49.859
5444.00	12.900	330.700	5443.17	31.39 N	58.39 W	62.78	52.152
5454.00	18.600	331.800	5452.79	33.77 N	59.69 W	65.41	57.076
5464.00	24.600	332.300	5462.08	37.03 N	61.41 W	68.96	60.028
5474.00	30.700	332.700	5470.94	41.14 N	63.55 W	73.43	61.028
5484.00	37.000	334.600	5479.24	46.13 N	66.02 W	78.76	63.876
5494.00	41.300	330.400	5486.99	51.72 N	68.94 W	84.84	50.499
5504.00	45.300	336.000	5494.27	57.85 N	72.02 W	91.42	55.423

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 16-23

Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
5514.00	51.000	335.400	5500.94	64.63 N	75.08 W	98.47	57.174
5524.00	56.900	334.000	5506.82	71.94 N	78.54 W	106.17	60.074
5534.00	63.500	333.400	5511.79	79.71 N	82.38 W	114.48	66.205
5544.00	69.800	333.400	5515.75	87.91 N	86.49 W	123.28	63.000
5578.00	87.500	329.800	5522.42	117.10 N	102.31 W	155.42	53.075
5619.00	88.500	324.700	5523.85	151.55 N	124.47 W	195.72	12.668
5651.00	89.700	321.000	5524.35	177.05 N	143.79 W	227.55	12.154
5683.00	89.700	320.200	5524.52	201.77 N	164.10 W	259.48	2.500
5715.00	90.600	320.900	5524.44	226.48 N	184.43 W	291.42	3.563
5746.00	89.800	321.200	5524.33	250.59 N	203.92 W	322.34	2.756
5778.00	88.000	320.200	5524.94	275.35 N	224.18 W	354.27	6.434
5810.00	89.600	319.600	5525.61	299.82 N	244.79 W	386.22	5.340
5841.00	89.100	318.400	5525.96	323.21 N	265.13 W	417.20	4.193
5873.00	91.000	318.700	5525.94	347.20 N	286.31 W	449.19	6.011
5905.00	92.600	319.800	5524.93	371.43 N	307.18 W	481.14	6.067
5937.00	91.800	318.600	5523.70	395.63 N	328.08 W	513.10	4.505
5969.00	89.100	317.700	5523.45	419.47 N	349.42 W	545.08	8.894
6000.00	89.200	318.200	5523.91	442.48 N	370.19 W	576.08	1.645
6031.00	91.100	318.700	5523.83	465.68 N	390.75 W	607.07	6.338
6063.00	91.800	318.700	5523.02	489.71 N	411.86 W	639.04	2.187
6095.00	90.400	317.300	5522.41	513.49 N	433.27 W	671.03	6.187
6127.00	88.600	315.200	5522.69	536.60 N	455.39 W	703.02	8.643
6158.00	88.200	315.100	5523.55	558.57 N	477.25 W	733.99	1.330
6190.00	86.000	314.900	5525.17	581.17 N	499.84 W	765.93	6.903
6222.00	91.700	316.600	5525.81	604.07 N	522.16 W	797.90	18.587
6254.00	90.800	317.200	5525.11	627.43 N	544.02 W	829.89	3.380
6286.00	89.200	315.900	5525.11	650.66 N	566.02 W	861.89	6.442
6317.00	90.600	315.900	5525.17	672.92 N	587.60 W	892.89	4.516
6349.00	88.200	314.700	5525.50	695.67 N	610.10 W	924.87	8.385
6381.00	91.100	315.900	5525.70	718.41 N	632.61 W	956.85	9.808
6413.00	90.400	315.900	5525.28	741.39 N	654.87 W	988.84	2.187
6444.00	88.200	315.200	5525.66	763.51 N	676.58 W	1019.82	7.447
6476.00	90.400	314.400	5526.05	786.06 N	699.28 W	1051.80	7.315
6508.00	89.600	315.100	5526.05	808.59 N	722.01 W	1083.77	3.322
6539.00	90.400	315.400	5526.05	830.60 N	743.83 W	1114.76	2.756
6571.00	88.800	315.400	5526.27	853.39 N	766.30 W	1146.74	5.000
6603.00	87.000	314.700	5527.45	876.02 N	788.89 W	1178.70	6.035
6635.00	91.000	315.100	5528.00	898.60 N	811.55 W	1210.67	12.562
6666.00	87.800	314.900	5528.33	920.51 N	833.47 W	1241.64	10.343
6698.00	88.500	314.700	5529.36	943.05 N	856.16 W	1273.60	2.275
6730.00	91.900	316.300	5529.25	965.87 N	878.58 W	1305.59	11.742
6762.00	92.900	316.500	5527.91	989.02 N	900.63 W	1337.56	3.187
6794.00	93.600	317.300	5526.10	1012.35 N	922.46 W	1369.50	3.319
6826.00	92.300	317.200	5524.45	1035.82 N	944.15 W	1401.46	4.074
6856.00	89.900	317.000	5523.87	1057.79 N	964.57 W	1431.45	8.028

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 16-23

Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
6888.00	90.000	317.700	5523.90	1081.32 N	986.25 W	1463.45	2.210
6921.00	90.000	318.200	5523.90	1105.83 N	1008.35 W	1496.45	1.515
6953.00	90.200	319.500	5523.85	1129.92 N	1029.41 W	1528.43	4.110
6985.00	89.800	319.300	5523.85	1154.22 N	1050.24 W	1560.40	1.398
7017.00	90.200	319.300	5523.85	1178.48 N	1071.10 W	1592.38	1.250
7048.00	92.100	320.300	5523.22	1202.15 N	1091.11 W	1623.33	6.926
7091.00	91.800	319.800	5521.76	1235.10 N	1118.70 W	1666.24	1.355
7125.00	91.800	319.800	5520.69	1261.05 N	1140.64 W	1700.19	0.000

All data is in feet unless otherwise stated. Directions and coordinates are relative to True North.
Vertical depths are relative to Well. Northings and Eastings are relative to Well.

The Dogleg Severity is in Degrees per 100ft.
Vertical Section is from Well and calculated along an Azimuth of 317.000° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 7125.00ft.,
The Bottom Hole Displacement is 1700.38ft., in the Direction of 317.870° (True).

Mobil

San Juan County
Utah
Ratherford Unit
RU 16-23 - MWD Survey Leg #2

SURVEY REPORT

31 July, 1998

sperry-sun
DRILLING SERVICES
A DIVISION OF [illegible]

Survey Ref: svy3012

Sperry-Sun Drilling Services

Survey Report for RU 16-23

Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
Gyro							
0.00	0.000	0.000	0.00	0.00 N	0.00 E	0.00	
200.00	0.330	314.330	200.00	0.40 N	0.41 W	-0.58	0.165
400.00	0.450	305.380	399.99	1.26 N	1.46 W	-1.93	0.067
600.00	0.710	300.720	599.98	2.35 N	3.17 W	-3.93	0.132
800.00	0.970	307.070	799.96	4.00 N	5.59 W	-6.83	0.138
1000.00	1.410	293.150	999.92	5.99 N	9.20 W	-10.84	0.262
1200.00	1.480	292.590	1199.86	7.95 N	13.85 W	-15.61	0.036
1400.00	1.510	288.830	1399.79	9.79 N	18.73 W	-20.47	0.051
1600.00	1.400	288.590	1599.72	11.42 N	23.54 W	-25.13	0.055
1800.00	1.100	279.140	1799.68	12.50 N	27.75 W	-28.99	0.182
2000.00	1.050	282.590	1999.64	13.21 N	31.43 W	-32.20	0.041
2200.00	1.260	298.330	2199.60	14.65 N	35.15 W	-35.93	0.189
2400.00	1.210	303.130	2399.55	16.85 N	38.86 W	-40.15	0.057
2600.00	1.120	286.340	2599.51	18.55 N	42.50 W	-44.00	0.176
2800.00	1.010	311.030	2799.48	20.26 N	45.71 W	-47.52	0.234
3000.00	0.810	313.690	2999.45	22.39 N	48.06 W	-50.70	0.102
3200.00	0.710	313.630	3199.44	24.23 N	49.98 W	-53.35	0.050
3400.00	0.500	337.130	3399.43	25.88 N	51.21 W	-55.38	0.160
3600.00	0.400	334.130	3599.42	27.32 N	51.86 W	-56.82	0.051
3800.00	0.290	30.600	3799.42	28.38 N	51.91 W	-57.56	0.170
4000.00	0.220	80.770	3999.41	28.88 N	51.27 W	-57.42	0.113
4200.00	0.260	67.610	4199.41	29.11 N	50.47 W	-56.99	0.034
4400.00	0.010	235.600	4399.41	29.28 N	50.06 W	-56.79	0.135
4600.00	0.180	250.610	4599.41	29.16 N	50.38 W	-56.95	0.085
4800.00	0.330	281.760	4799.41	29.17 N	51.24 W	-57.60	0.100
5000.00	0.360	269.490	4999.41	29.29 N	52.43 W	-58.56	0.040
5200.00	0.630	261.530	5199.40	29.12 N	54.14 W	-59.72	0.139
5400.00	0.800	270.920	5399.38	28.98 N	56.63 W	-61.47	0.103
MWD Survey Leg #2							
5402.00	0.770	271.280	5401.38	28.98 N	56.65 W	-61.49	1.520
5409.00	3.700	132.000	5408.38	28.83 N	56.53 W	-61.30	61.613
5419.00	8.200	133.400	5418.32	28.12 N	55.78 W	-60.27	45.020
5429.00	13.600	133.800	5428.14	26.82 N	54.41 W	-58.38	54.005
5439.00	18.800	134.000	5437.74	24.88 N	52.40 W	-55.59	52.003
5449.00	24.100	134.100	5447.04	22.34 N	49.77 W	-51.94	53.001
5459.00	28.800	134.200	5455.99	19.24 N	46.58 W	-47.49	47.002
5469.00	32.700	134.300	5464.58	15.67 N	42.92 W	-42.38	39.003
5479.00	35.900	134.300	5472.84	11.74 N	38.88 W	-36.75	32.000
5489.00	39.900	134.600	5480.73	7.44 N	34.50 W	-30.61	40.042

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 16-23

Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
5499.00	42.700	130.200	5488.25	2.99 N	29.62 W	-24.02	40.327
5509.00	47.200	130.600	5495.32	1.58 S	24.25 W	-16.96	45.088
5519.00	50.800	126.300	5501.88	6.27 S	18.33 W	-9.43	48.454
5529.00	54.800	126.100	5507.93	10.97 S	11.91 W	-1.51	40.032
5539.00	58.900	127.400	5513.40	15.98 S	5.20 W	6.83	42.419
5549.00	63.800	128.000	5518.19	21.35 S	1.74 E	15.58	49.282
5559.00	68.000	128.900	5522.27	27.02 S	8.89 E	24.69	42.795
5569.00	73.200	129.400	5525.59	32.98 S	16.20 E	34.10	52.213
5600.00	87.700	131.800	5530.72	52.83 S	39.34 E	64.58	47.390
5651.00	87.000	133.500	5533.08	87.34 S	76.81 E	115.52	3.602
5683.00	87.500	132.800	5534.62	109.20 S	100.12 E	147.48	2.686
5715.00	88.000	132.200	5535.87	130.80 S	123.70 E	179.45	2.440
5747.00	88.600	131.400	5536.82	152.12 S	147.54 E	211.44	3.124
5778.00	89.200	131.700	5537.42	172.68 S	170.74 E	242.43	2.164
5810.00	89.400	131.200	5537.81	193.86 S	194.72 E	274.43	1.683
5842.00	86.700	130.100	5538.90	214.69 S	218.98 E	306.39	9.110
5874.00	85.800	130.100	5540.99	235.26 S	243.41 E	338.31	2.812
5906.00	86.800	131.500	5543.05	256.13 S	267.58 E	370.23	5.369
5937.00	87.500	131.700	5544.60	276.68 S	290.73 E	401.19	2.348
5969.00	88.200	132.200	5545.80	298.06 S	314.52 E	433.17	2.688
6000.00	88.400	132.600	5546.72	318.95 S	337.40 E	464.16	1.442
6032.00	90.100	132.900	5547.13	340.67 S	360.89 E	496.15	5.395
6064.00	90.400	133.300	5546.99	362.54 S	384.26 E	528.14	1.562
6095.00	91.500	133.500	5546.48	383.83 S	406.78 E	559.13	3.607
6127.00	90.800	133.500	5545.84	405.86 S	429.99 E	591.11	2.187
6159.00	89.100	132.800	5545.87	427.74 S	453.33 E	623.10	5.745
6191.00	88.500	133.100	5546.54	449.54 S	476.75 E	655.09	2.096
6223.00	89.900	134.000	5546.98	471.58 S	499.94 E	687.08	5.201
6255.00	91.400	134.700	5546.62	493.95 S	522.82 E	719.05	5.173
6286.00	92.200	135.100	5545.65	515.82 S	544.77 E	749.99	2.885
6318.00	92.800	135.400	5544.25	538.53 S	567.27 E	781.91	2.096
6350.00	91.500	134.700	5543.05	561.16 S	589.86 E	813.84	4.613
6381.00	89.800	134.200	5542.70	582.86 S	611.99 E	844.81	5.716
6413.00	89.200	134.000	5542.98	605.13 S	634.97 E	876.79	1.976
6444.00	90.500	134.500	5543.06	626.76 S	657.17 E	907.76	4.493
6477.00	92.100	136.100	5542.31	650.21 S	680.38 E	940.70	6.856
6507.00	90.100	135.100	5541.73	671.64 S	701.36 E	970.63	7.453
6539.00	88.200	134.400	5542.21	694.16 S	724.09 E	1002.59	6.328
6570.00	89.100	133.700	5542.94	715.71 S	746.36 E	1033.56	3.678
6602.00	87.300	132.100	5543.94	737.48 S	769.79 E	1065.54	7.524
6634.00	86.700	131.500	5545.62	758.78 S	793.61 E	1097.49	2.650
6666.00	87.800	132.200	5547.15	780.11 S	817.42 E	1129.45	4.073
6698.00	86.700	132.400	5548.69	801.62 S	841.06 E	1161.42	3.494
6729.00	88.400	133.300	5550.02	822.68 S	863.76 E	1192.38	6.204
6761.00	87.700	134.200	5551.10	844.80 S	886.87 E	1224.35	3.562

Continued...

Sperry-Sun Drilling Services

Survey Report for RU 16-23

Mobil
San Juan County

Utah
Ratherford Unit

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
6793.00	88.200	134.500	5552.25	867.15 S	909.73 E	1256.30	1.822
6825.00	91.100	136.100	5552.44	889.89 S	932.24 E	1288.24	10.350
6857.00	91.300	136.600	5551.77	913.04 S	954.32 E	1320.14	1.683
6888.00	88.200	136.100	5551.91	935.47 S	975.72 E	1351.05	10.129
6920.00	89.100	137.200	5552.66	958.73 S	997.68 E	1382.94	4.441
6952.00	88.600	137.700	5553.31	982.30 S	1019.31 E	1414.78	2.209
6984.00	88.800	135.900	5554.03	1005.62 S	1041.21 E	1446.66	5.658
7015.00	88.900	136.100	5554.65	1027.92 S	1062.74 E	1477.58	0.721
7047.00	89.600	135.800	5555.07	1050.91 S	1084.99 E	1509.50	2.380
7079.00	90.100	134.200	5555.16	1073.54 S	1107.62 E	1541.46	5.238
7111.00	91.800	135.400	5554.63	1096.08 S	1130.32 E	1573.41	6.502
7143.00	90.400	134.900	5554.01	1118.77 S	1152.88 E	1605.36	4.646
7174.00	88.900	133.300	5554.20	1140.34 S	1175.14 E	1636.33	7.075
7204.00	89.800	132.800	5554.54	1160.81 S	1197.06 E	1666.33	3.432
7238.00	89.800	132.800	5554.66	1183.92 S	1222.01 E	1700.32	0.000

All data is in feet unless otherwise stated. Directions and coordinates are relative to True North.
Vertical depths are relative to Well. Northings and Eastings are relative to Well.

The Dogleg Severity is in Degrees per 100ft.
Vertical Section is from Well and calculated along an Azimuth of 132.000° (True).

Based upon Minimum Curvature type calculations, at a Measured Depth of 7238.00ft.,
The Bottom Hole Displacement is 1701.46ft., in the Direction of 134.093° (True).

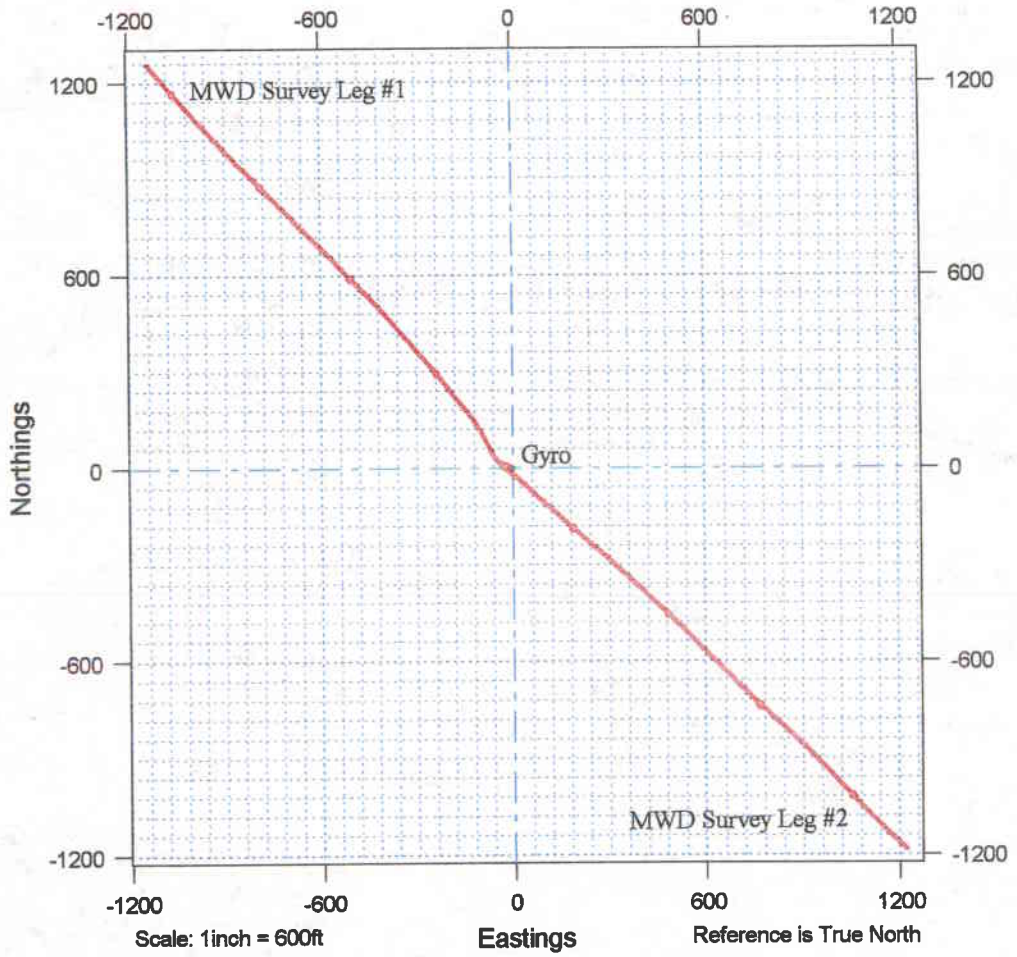
sperry-sun DRILLING SERVICES

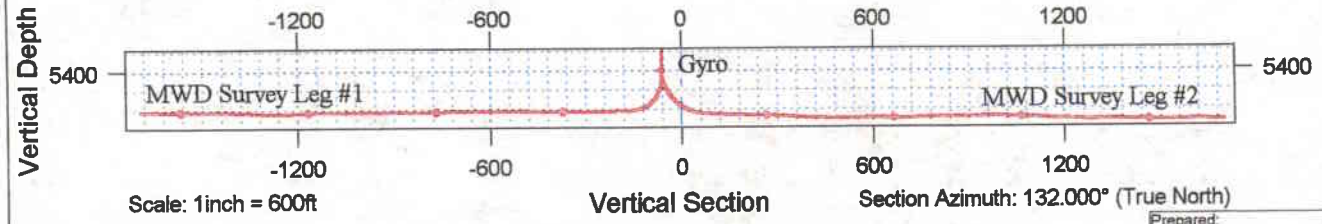
Mobil

DrillQuest™

San Juan County
Utah
Ratherford Unit
RU 16-23 Legs 1 & 2

Mobil





Prepared:	Checked:	Approved:

DRILLED FOOTAGE CALCULATION FOR DIRECTIONAL AND HORIZONTAL WELLS

Unit, Well Name:	Ratherford Unit, Well 16-W-23
API Well #:	43-037-15722
Well Completion:	Horizontal, Injector, 2 Laterals

First leg description:	Lateral #1
KOP MD:	5418.00
EOL MD:	7125.00
Footage drilled:	1707.00
Max. TVD Recorded	5529.36

Second leg description:	Lateral #2
KOP MD:	5402.00
EOL MD:	7238.00
Footage drilled:	1836.00
Max. TVD Recorded	5554.66

Total Footage Drilled (MD):	***3543.00***
Deepest point (TVD):	***5554.66***

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT - " for such proposals

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.: 14-20-603-355
6. If Indian, Allottee or Tribe Name: NAVAJO TRIBAL
7. If Unit or CA, Agreement Designation: RATHERFORD UNIT
8. Well Name and No.: RATHERFORD 16-W-23
9. API Well No.: 43-037-15722
10. Field and Pool, or exploratory Area: GREATER ANETH
11. County or Parish, State: SAN JUAN UT

1. Type of Well: [ ] Oil Well [ ] Gas Well [X] Other
2. Name of Operator: MOBIL PRODUCING TX & NM INC.*
*MOBIL EXPLORATION & PRODUCING US INC. AS AGENT FOR MPTM
3. Address and Telephone No.: P.O. Box 633, Midland TX 79702 (915) 688-2585
4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
SEC. 16, T41S, R24E
(NE/SW) 1980' FSL & 1980' FWL

12. CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION	
[ ] Notice of Intent	[ ] Abandonment	[ ] Change of Plans
[X] Subsequent Report	[ ] Recompletion	[ ] New Construction
[ ] Final Abandonment Notice	[ ] Plugging Back	[ ] Non-Routine Fracturing
	[ ] Casing Repair	[ ] Water Shut-Off
	[ ] Altering Casing	[ ] Conversion to Injection
	[X] Other INJECTOR/SIDETRACK	[ ] Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

BHL:

LATERAL #1; 1261' NORTH & 1141' WEST FROM SURFACE SPOT (ZONE 1a).
LATERAL #2; 1184' SOUTH & 1222' EAST FROM SURFACE SPOT (ZONE 1a).

JULY 9, 1998 -- AUGUST 12, 1998 HORIZONTAL RECOMPLETION.

SEE ATTACHED FORM 15.

RECEIVED
FEB 01 1999
DIV. OF OIL, GAS & MINING

14. I hereby certify that the foregoing is true and correct
Signed Sue Moseley for Title SHIRLEY HOUCHINS/ENV & REG TECH Date 1-29-98

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____
Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

* See Instruction on Reverse Side

WTC 2-25-99 RJK

ExxonMobil Production Comp
U.S. West
P.O. Box 4358
Houston, Texas 77210-4358

June 27, 2001

ExxonMobil
Production

Mr. Jim Thompson
State of Utah, Division of Oil, Gas and Mining
1549 West North Temple
Suite 1210
Salt Lake City, UT 84114-5801

Change of Name – Mobil Oil Corporation to
ExxonMobil Oil Corporation

Dear Mr. Thompson

Effective June 1, 2001, Mobil Oil Corporation (MOC) changed its name to ExxonMobil Oil Corporation (EMOC). This was a name change only; EMOC is the same corporation as Mobil Oil Corporation, but with a new name. No facility or other asset was transferred from one corporation to another by virtue of the name change. Specifically, EMOC will remain the owner and operator of its existing exploration and production oil and gas properties and facilities, as well as relevant permits.

There is no change to the name of Exxon Mobil Corporation, the ultimate shareholder of EMOC.

Please note the change of name of MOC to ExxonMobil Oil Corporation in your records pertaining to any MOC permits.

The Federal Identification Number for MOC (13-5401570) will remain the same for EMOC.

A copy of the Certification, Bond Rider and a list of wells are attached.

If you have any questions please feel free to call Joel Talavera at 713-431-1010

Very truly yours,

Charlotte H. Harper
Permitting Supervisor

ExxonMobil Production Company
a division of Exxon Mobil Corporation,
acting for ExxonMobil Oil Corporation

United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
~~XXXXXXXXXXXXXX~~
Navajo Area Office
NAVAJO REGION
P.O. Box 1060
Gallup, New Mexico 87305-1060

IN REPLY REFER TO:

RRES/543

AUG 30 2001

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Charlotte H. Harper, Permitting Supervisor
Exxon Mobil Production Company
U. S. West
P. O. Box 4358
Houston, TX 77210-4358

Dear Ms. Harper:

This is to acknowledge receipt of your company's name change from Mobil Oil Corporation to ExxonMobil Oil Corporation effective June 1, 2001. The receipt of documents includes the Name Change Certification, current listing of Officers and Directors, Listing of Leases, Financial Statement, filing fees of $75.00 and a copy of the Rider for Bond Number 8027 31 97. There are no other changes.

Please note that we will provide copies of these documents to other concerned parties. If you need further assistance, you may contact Ms. Bertha Spencer, Realty Specialist, at (928) 871-5938.

Sincerely,

DENNIS DENETSONE

Regional Realty Officer

cc: BLM, Farmington Field Office w/enclosures
Navajo Nation Minerals Office, Attn: Mr. Akhtar Zaman, Director/w enclosures

MINERAL RESOURCES
ADM BLM
NATV AM MIN COORD
SOLID MIN TEAM
PETRO MGMT TEAM
O & G INSPECT TEAM
ALL TEAM LEADERS
LAND RESOURCES
ENVIRONMENT
FILES

ExxonMobil Production Company
U.S. West
P.O. Box 4358
Houston, Texas 77210-4358

BK 7/12/2001
SN
543
File

June 27, 2001

ExxonMobil
Production

Certified Mail
Return Receipt Requested

RECEIVED
#477
JUL 9 - 2001
Navajo Region Office
RES - Minerals Section

Ms. Genni Denetsone
United States Department of the Interior
Bureau of Indian Affairs, Navajo Region
Real Estate Services
P. O. Box 1060
Gallup, New Mexico 87305-1060
Mail Code 543

Change of Name –
Mobil Oil Corporation to
ExxonMobil Oil Corporation

Dear Ms. Denetsone:

Effective June 1, 2001, Mobil Oil Corporation (MOC) changed its name to ExxonMobil Oil Corporation (EMOC). This was a name change only; EMOC is the same corporation as Mobil Oil Corporation, but with a new name. No facility or other asset was transferred from one corporation to another by virtue of the name change. Specifically, EMOC will remain the owner and operator of its existing exploration and production oil and gas properties and facilities, as well as relevant permits.

There is no change to the name of Exxon Mobil Corporation, the ultimate shareholder of EMOC.

Please note the change of name of MOC to ExxonMobil Oil Corporation in your records pertaining to any MOC permits.

The Federal Identification Number for MOC (13-5401570) will remain the same for EMOC.

Attached is the Name Change Certification, Current listing of Officers and Directors, Filing Fee of $75/-, Listing of Leases, Financial Statement and a copy of the Rider for Bond number 8027 31 97. The original Bond Rider has been sent to Ms. Barbar Davis at your Washington Office.

If you have any questions , please contact Alex Correa at (713) 431-1012.

Very truly yours,

Charlotte H. Harper

Charlotte H. Harper
Permitting Supervisor

Attachments

RECEIVED
JUL 05 2001
NAVAJO REGION OFFICE
BRANCH OF REAL ESTATE SERVICES

ExxonMobil Production Company
a division of Exxon Mobil Corporation,
acting for ExxonMobil Oil Corporation

NOTE: Check forwarded to Ella Isosi

Bureau of Indian Affairs
Navajo Region Office
Attn: RRES - Mineral and Mining Section
P.O. Box 1060
Gallup, New Mexico 87305-1060

Gentlemen:

The current listing of officers and director of ExxonMobil Oil Corporation (Name of Corporation), of New York (State) is as follows:

OFFICERS

President	F.A. Risch	Address	5959 Las Colinas Blvd. Irving, TX 75039
Vice President	K.T. Koonce	Address	800 Bell Street Houston, TX 77002
Secretary	F.L. Reid	Address	5959 Las Colinas Blvd. Irving, TX 75039
Treasure	B.A. Maher	Address	5959 Las Colinas Blvd. Irving, TX 75039

DIRECTORS

Name	D.D. Humphreys	Address	5959 Las Colinas Blvd. Irving, TX 75039
Name	P.A. Hanson	Address	5959 Las Colinas Blvd. Irving, TX 75039
Name	T.P. Townsend	Address	5959 Las Colinas Blvd. Irving, TX 75039
Name	B.A. Maher	Address	5959 Las Colinas Blvd. Irving, TX 75039
Name	F.A. Risch	Address	5959 Las Colinas Blvd. Irving, TX 75039

Sincerely,

Alex Correa

This is to certify that the above information pertaining to ExxonMobil Oil Corporation (Corporation) is trust and correct as evidenced by the records and accounts covering business for the State of Utah and in the custody of Corporation Service Company (Agent), Phone: 1 (800)927-9800, whose business address is One Utah Center, 201 South Main Street, Salt Lake City, Utah 84111-2218

(CORPORATE SEAL)

Signature

AGENT AND ATTORNEY IN FACT
Title

SAL

CERTIFICATION

I, the undersigned Assistant Secretary of ExxonMobil Oil Corporation. (formerly Mobil Oil Corporation), a corporation organized and existing under the laws of the State of New York, United States of America, DO HEREBY CERTIFY, That, the following is a true and exact copy of the resolutions adopted by the Board of Directors on May 22, 2001:

CHANGE OF COMPANY NAME

WHEREAS, the undersigned Directors of the Corporation deem it to be in the best interest of the Corporation to amend the Certificate of Incorporation of the Corporation to change the name and principal office of the Corporation:

NOW THEREFORE BE IT RESOLVED, That Article 1st relating to the corporate name is hereby amended to read as follows:

"1st The corporate name of said Company shall be,

ExxonMobil Oil Corporation",

FURTHER RESOLVED, That the amendment of the Corporation's Certificate of Incorporation referred to in the preceding resolutions be submitted to the sole shareholder of the Corporation entitled to vote thereon for its approval and, if such shareholder gives its written consent, pursuant to Section 803 of the Business Corporation Law of the State of New York, approving such amendment, the proper officers of the Corporation be, and they hereby are, authorized to execute in the name of the Corporation the Certificate of Amendment of Certificate of Incorporation, in the form attached hereto;

FURTHER RESOLVED, That the proper officers of the Corporation be and they hereby are authorized and directed to deliver, file and record in its behalf, the Certificate of Amendment of Certificate of Incorporation, and to take such action as may be deemed necessary or advisable to confirm and make effective in all respects the change of this Company's name to EXXONMOBIL OIL CORPORATION.

WITNESS, my hand and the seal of the Corporation at Irving, Texas, this 8th day of June, 2001.

S. A. Millican
Assistant Secretary

COUNTY OF DALLAS)
STATE OF TEXAS)
UNITED STATES OF AMERICA)
Sworn to and subscribed before me at Irving, Texas, U. S. A. on this the 8th day of June, 2001.

Janice M. Phillips
Notary Public

LISTING OF LEASES OF MOBIL OIL CORPORATION

	Lease Number
1)	14-20-0603-6504
2)	14-20-0603-6505
3)	14-20-0603-6506
4)	14-20-0603-6508
5)	14-20-0603-6509
6)	14-20-0603-6510
7)	14-20-0603-7171
8)	14-20-0603-7172A
9)	14-20-600-3530
10)	14-20-603-359
11)	14-20-603-368
12)	14-20-603-370
13)	14-20-603-370A
14)	14-20-603-372
15)	14-20-603-372A
16)	14-20-603-4495
17)	14-20-603-5447
18)	14-20-603-5448
19)	14-20-603-5449
20)	14-20-603-5450
21)	14-20-603-5451

6/1/01

CHUBB GROUP OF INSURANCE COMPANIES

[illegible] South, Suite 1500, Houston, Texas 77027-3301
[illegible] 927-4600 • Facsimile (713) 297-4750

NW Bond

FEDERAL INSURANCE COMPANY RIDER
to be attached to and form a part of

BOND NO 8027 31 97
wherein
Mobil Oil Corporation and Mobil Exploration and Producing U.S., Inc. is named as Principal and

FEDERAL INSURANCE COMPANY AS SURETY,

in favor of United States of America, Department of the Interior Bureau of Indian Affairs

in the amount of $150,000.00
bond date: 11/01/65

IT IS HEREBY UNDERSTOOD AND AGREED THAT effective June 1, 2001 the name of the Principal is changed

FROM: Mobil Oil Corporation and Mobil Exploration and Producing U.S., Inc.

TO : ExxonMobil Oil Corporation

All other terms and conditions of this Bond are unchanged.

Signed, sealed and dated this 12th of June, 2001.

ExxonMobil Oil Corporation

By :

FEDERAL INSURANCE COMPANY

By: Mary Pierson
Mary Pierson, Attorney-in-fact

Chubb Surety	POWER OF ATTORNEY	Federal Insurance Company Vigilant Insurance Company Pacific Indemnity Company	Attn.: Surety Department 15 Mountain View Road Warren, NJ 07059

Know All by These Presents, That FEDERAL INSURANCE COMPANY, an Indiana corporation, VIGILANT INSURANCE COMPANY, a New York corporation, and PACIFIC INDEMNITY COMPANY, a Wisconsin corporation, do each hereby constitute and appoint R.F. Bobo, Mary Pierson, Philana Berros, and Jody E. Specht of Houston, Texas----------

each as their true and lawful Attorney-in-Fact to execute under such designation in their names and to affix their corporate seals to and deliver for and on their behalf as surety thereon or otherwise, bonds and undertakings and other writings obligatory in the nature thereof (other than bail bonds) given or executed in the course of business, and any instruments amending or altering the same, and consents to the modification or alteration of any instrument referred to in said bonds or obligations.

In Witness Whereof, said FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY have each executed and attested these presents and affixed their corporate seals on this 10th day of May, 2001.

Kenneth C. Wendel, Assistant Secretary

Frank E. Robertson, Vice President

STATE OF NEW JERSEY }
County of Somerset } ss.

On this 10th day of May, 2001, before me, a Notary Public of New Jersey, personally came Kenneth C. Wendel, to me known to be Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY, the companies which executed the foregoing Power of Attorney, and the said Kenneth C. Wendel being by me duly sworn, did depose and say that he is Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY and knows the corporate seals thereof, that the seals affixed to the foregoing Power of Attorney are such corporate seals and were thereto affixed by authority of the By-Laws of said Companies; and that he signed said Power of Attorney as Assistant Secretary of said Companies by like authority; and that he is acquainted with Frank E. Robertson, and knows him to be Vice President of said Companies; and that the signature of Frank E. Robertson, subscribed to said Power of Attorney is in the genuine handwriting of Frank E. Robertson, and was thereto subscribed by authority of said Boards and in deponent's presence.

Karen A. Price

Notarial Seal

KAREN A. PRICE NOTARY PUBLIC NEW JERSEY

Notary Public State of New Jersey
No. 2231647
Commission Expires Oct. 28, 2004

Karen A. Price
Notary Public

CERTIFICATION

Extract from the By-Laws of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY:

"All powers of attorney for and on behalf of the Company may and shall be executed in the name and on behalf of the Company, either by the Chairman or the President or a Vice President or an Assistant Vice President, jointly with the Secretary or an Assistant Secretary, under their respective designations. The signature of such officers may be engraved, printed or lithographed. The signature of each of the following officers: Chairman, President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary and the seal of the Company may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such power of attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached."

I, Kenneth C. Wendel, Assistant Secretary of FEDERAL INSURANCE COMPANY, VIGILANT INSURANCE COMPANY, and PACIFIC INDEMNITY COMPANY (the "Companies") do hereby certify that

(i) the foregoing extract of the By-Laws of the Companies is true and correct,
(ii) the Companies are duly licensed and authorized to transact surety business in all 50 of the United States of America and the District of Columbia and are authorized by the U. S. Treasury Department; further, Federal and Vigilant are licensed in Puerto Rico and the U. S. Virgin Islands, and Federal is licensed in American Samoa, Guam, and each of the Provinces of Canada except Prince Edward Island; and
(iii) the foregoing Power of Attorney is true, correct and in full force and effect.

Given under my hand and seals of said Companies at Warren, NJ this 12th day of June, 2001.

FEDERAL INSURANCE COMPANY INDIANA

PACIFIC INDEMNITY COMPANY INCORPORATED JUL. 14, 1926 WISCONSIN

VIGILANT INSURANCE COMPANY NEW YORK

Kenneth C. Wendel, Assistant Secretary

IN THE EVENT YOU WISH TO NOTIFY US OF A CLAIM, VERIFY THE AUTHENTICITY OF THIS BOND OR NOTIFY US OF ANY OTHER MATTER, PLEASE CONTACT US AT ADDRESS LISTED ABOVE, OR BY
Telephone (908) 903-3485 Fax (908) 903-3656 e-mail: surety@chubb.com

15-10-0225 (Ed. 4-99) CONSENT

F010601000187

CSC 45

CERTIFICATE OF AMENDMENT

OF

CERTIFICATE OF INCORPORATION

OF

MOBIL OIL CORPORATION

(Under Section 805 of the Business Corporation Law)

Pursuant to the provisions of Section 805 of the Business Corporation Law, the undersigned President and Secretary, respectively, of Mobil Oil Corporation hereby certify:

FIRST: That the name of the corporation is MOBIL OIL CORPORATION and that said corporation was incorporated under the name of Standard Oil Company of New York.

SECOND: That the Certificate of Incorporation of the corporation was filed by the Department of State, Albany, New York, on the 10th day of August, 1882.

THIRD: That the amendments to the Certificate of Incorporation effected by this Certificate are as follows:

(a) Article 1st of the Certificate of Incorporation, relating to the corporate name, is hereby amended to read as follows:

"1st The corporate name of said Company shall be,

ExxonMobil Oil Corporation",

(b) Article 7th of the Certificate of Incorporation, relating to the office of the corporation is hereby amended to read as follows:

The office of the corporation within the State of New York is to be located in the County of Albany. The Company shall have offices at such other places as the Board of Directors may from time to time determine.

FOURTH: That the amendments to the Certificate of Incorporation were authorized by the Board of Directors followed by the holder of all outstanding shares entitled to vote on amendments to the Certificate of Incorporation by written consent of the sole shareholder dated May 22, 2001.

IN WITNESS WHEREOF, this Certificate has been signed this 22nd Day of May, 2001.

F. A. Risch, President

STATE OF TEXAS)
COUNTY OF DALLAS)

F. L. REID, being duly sworn, deposes and says that he is the Secretary of MOBIL OIL CORPORATION, the corporation mentioned and described in the foregoing instrument; that he has read and signed the same and that the statements contained therein are true.

F. L. REID, Secretary

SUBSCRIBED AND SWORN TO before me, the undersigned authority, on this the 22nd day of May, 2001.

[SEAL]

NOTARY PUBLIC, STATE OF TEXAS

JANICE M. PHILLIPS
MY COMMISSION EXPIRES
May 16, 2002

CSC 5184334741 06/01 '01 09:01 NO.411 02/02
CSC 06/01 '01 09:06 NO.135 04/04

F010601000187

CSC 45

CERTIFICATE OF AMENDMENT

OF

MOBIL OIL CORPORATION

Under Section 805 of the Business Corporation Law

100 cc

STATE OF NEW YORK
DEPARTMENT OF STATE

Filed by: EXXONMOBIL CORPORATION
(Name)

5959 Las Colinas Blvd.
(Mailing address)

Irving, TX 75039-2298
(City, State and Zip code)

FILED JUN 01 2001
TAX $
BY:

Albany

Cust Ref # 165578MPS

RECEIVED
JUL 05 2001
DIVISION OF REAL ESTATE SERVICES

010601000195

State of New York }
Department of State } *ss:*

I hereby certify that the annexed copy has been compared with the original document in the custody of the Secretary of State and that the same is a true copy of said original.

Witness my hand and seal of the Department of State on JUN 01 2001

STATE OF NEW YORK ★ DEPARTMENT OF STATE ★ EXCELSIOR

Special Deputy Secretary of State

DOS-1266 (7/00)

Division of Oil, Gas and Mining

OPERATOR CHANGE WORKSHEET

ROUTING
1. GLH
2. CDW
3. FILE

Change of Operator (Well Sold) | Designation of Agent

X Operator Name Change | Merger

The operator of the well(s) listed below has changed, effective: **06-01-2001**

FROM: (Old Operator):	**TO:** (New Operator):
MOBIL EXPLORATION & PRODUCTION	EXXONMOBIL OIL CORPORATION
Address: P O BOX DRAWER "G"	Address: U S WEST P O BOX 4358
CORTEZ, CO 81321	HOUSTON, TX 77210-4358
Phone: 1-(970)-564-5212	Phone: 1-(713)-431-1010
Account No. N7370	Account No. N1855

CA No. **Unit:** **RATHERFORD**

WELL(S)

NAME	SEC TWN RNG	API NO	ENTITY NO	LEASE TYPE	WELL TYPE	WELL STATUS
NAVAJO A-9 (RATHERFORD 16W23)	16-41S-24E	43-037-15722	99990	INDIAN	WI	A
NAVAJO A-12 (RATHERFORD 16W21)	16-41S-24E	43-037-16414	99990	INDIAN	WI	A
RATHERFORD 16W43	16-41S-24E	43-037-16415	99990	INDIAN	WI	A
RATHERFORD 17-W-12	17-41S-24E	43-037-15726	6280	INDIAN	WI	A
17-14	17-41S-24E	43-037-15727	6280	INDIAN	WI	A
RATHERFORD 17-W-23	17-41S-24E	43-037-15728	6280	INDIAN	WI	A
17-32	17-41S-24E	43-037-15729	6280	INDIAN	WI	A
17-34	17-41S-24E	43-037-15730	6280	INDIAN	WI	A
17-41	17-41S-24E	43-037-15731	6280	INDIAN	WI	I
RATHERFORD 17-W-21	17-41S-24E	43-037-16416	99990	INDIAN	WI	A
RATHERFORD 17W43	17-41S-24E	43-037-16417	99990	INDIAN	WI	A
RATHERFORD 18-W-14	18-41S-24E	43-037-15735	6280	INDIAN	WI	A
18-W-32	18-41S-24E	43-037-15736	6280	INDIAN	WI	A
RATHERFORD 18-W-34	18-41S-24E	43-037-15737	6280	INDIAN	WI	A
DESERT A-4 (RATHERFORD 18W41)	18-41S-24E	43-037-15738	99990	INDIAN	WI	A
DESERT A-3 (RATHERFORD 18-W-21)	18-41S-24E	43-037-16418	99990	INDIAN	WI	A
18-23	18-41S-24E	43-037-30244	6280	INDIAN	WI	A
RATHERFORD U 18-W-12 (SDTRK)	18-41S-24E	43-037-31153	6280	INDIAN	WI	A
RATHERFORD UNIT 18-W-43B	18-41S-24E	43-037-31718	6280	INDIAN	WI	A
RATHERFORD U 19-W-12	19-41S-24E	43-037-15739	6280	INDIAN	WI	A

OPERATOR CHANGES DOCUMENTATION

Enter date after each listed item is completed

1. (R649-8-10) Sundry or legal documentation was received from the **FORMER** operator on: 06/29/2001
2. (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 06/29/2001
3. The new company has been checked through the **Department of Commerce, Division of Corporations Database on:** 04/09/2002
4. Is the new operator registered in the State of Utah: YES Business Number: 579865-0143
5. If **NO**, the operator was contacted contacted on: N/A

6. **Federal and Indian Lease Wells:** The BLM and or the BIA has approved the merger, name change, or operator change for all wells listed on Federal or Indian leases on: BIA-06/01/01

7. **Federal and Indian Units:**
The BLM or BIA has approved the successor of unit operator for wells listed on: 06/01/2001

8. **Federal and Indian Communization Agreements ("CA"):**
The BLM or BIA has approved the operator for all wells listed within a CA on: N/A

9. **Underground Injection Control ("UIC")** The Division has approved UIC Form 5, **Transfer of Authority to Inject,** for the enhanced/secondary recovery unit/project for the water disposal well(s) listed on: N/A
NOTE: EPA ISSUES UIC PERMIT

DATA ENTRY:

1. Changes entered in the **Oil and Gas Database on:** 04/11/2002
2. Changes have been entered on the **Monthly Operator Change Spread Sheet on:** 04/11/2002
3. Bond information entered in RBDMS on: N/A
4. Fee wells attached to bond in RBDMS on: N/A

STATE WELL(S) BOND VERIFICATION:

1. State well(s) covered by Bond Number: N/A

FEDERAL WELL(S) BOND VERIFICATION:

1. Federal well(s) covered by Bond Number: N/A

INDIAN WELL(S) BOND VERIFICATION:

1. Indian well(s) covered by Bond Number: 80273197

FEE WELL(S) BOND VERIFICATION:

1. (R649-3-1) The **NEW** operator of any fee well(s) listed covered by Bond Number N/A
2. The **FORMER** operator has requested a release of liability from their bond on: N/A
The Division sent response by letter on: N/A

LEASE INTEREST OWNER NOTIFICATION:

3. (R649-2-10) The **FORMER** operator of the fee wells has been contacted and informed by a letter from the Division of their responsibility to notify all interest owners of this change on: N/A

COMMENTS:

Division of Oil, Gas and Mining

OPERATOR CHANGE WORKSHEET

ROUTING
1. DJJ
2. CDW

X Change of Operator (Well Sold) Operator Name Change/Merger

The operator of the well(s) listed below has changed, effective: **6/1/2006**

FROM: (Old Operator):	**TO:** (New Operator):
N1855-ExxonMobil Oil Corporation	N2700-Resolute Natural Resources Company
PO Box 4358	1675 Broadway, Suite 1950
Houston, TX 77210-4358	Denver, CO 80202
Phone: 1 (281) 654-1936	Phone: 1 (303) 534-4600

CA No. **Unit:** **RATHERFORD (UIC)**

OPERATOR CHANGES DOCUMENTATION

Enter date after each listed item is completed

1. (R649-8-10) Sundry or legal documentation was received from the **FORMER** operator on: 4/21/2006
2. (R649-8-10) Sundry or legal documentation was received from the **NEW** operator on: 4/24/2006
3. The new company was checked on the **Department of Commerce, Division of Corporations Database on:** 6/7/2006
4. Is the new operator registered in the State of Utah: YES Business Number: 5733505-0143
5. If **NO**, the operator was contacted contacted on:

6a. (R649-9-2)Waste Management Plan has been received on: requested

6b. Inspections of LA PA state/fee well sites complete on: n/a

6c. Reports current for Production/Disposition & Sundries on: ok

7. **Federal and Indian Lease Wells:** The BLM and or the BIA has approved the merger, name change, or operator change for all wells listed on Federal or Indian leases on: BLM n/a BIA not yet
8. **Federal and Indian Units:** The BLM or BIA has approved the successor of unit operator for wells listed on: not yet
9. **Federal and Indian Communization Agreements ("CA"):** The BLM or BIA has approved the operator for all wells listed within a CA on: n/a
10. **Underground Injection Control ("UIC")** The Division has approved UIC Form 5, **Transfer of Authority to Inject,** for the enhanced/secondary recovery unit/project for the water disposal well(s) listed on: 6/12/2006

DATA ENTRY:

1. Changes entered in the **Oil and Gas Database on:** 6/22/2006
2. Changes have been entered on the **Monthly Operator Change Spread Sheet on:** 6/22/2006
3. Bond information entered in RBDMS on: n/a
4. Fee/State wells attached to bond in RBDMS on: n/a
5. Injection Projects to new operator in RBDMS on: 6/22/2006
6. Receipt of Acceptance of Drilling Procedures for APD/New on: n/a

BOND VERIFICATION:

1. Federal well(s) covered by Bond Number: n/a
2. Indian well(s) covered by Bond Number: PA002769
3. (R649-3-1) The **NEW** operator of any fee well(s) listed covered by Bond Number n/a

a. The **FORMER** operator has requested a release of liability from their bond on: n/a
The Division sent response by letter on: n/a

LEASE INTEREST OWNER NOTIFICATION:

4. (R649-2-10) The **FORMER** operator of the fee wells has been contacted and informed by a letter from the Division of their responsibility to notify all interest owners of this change on: n/a

COMMENTS:

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

UIC FORM 5

TRANSFER OF AUTHORITY TO INJECT

Well Name and Number	API Number
See attached list	Attached
Location of Well	**Field or Unit Name**
Footage : See attached list County : San Juan	Ratherford Unit
QQ, Section, Township, Range: State : UTAH	**Lease Designation and Number** See attached list

EFFECTIVE DATE OF TRANSFER: 6/1/2006

CURRENT OPERATOR

Company: Exxon Mobil Oil Corporation
Address: PO Box 4358
city Houston state TX zip 77210-4358
Phone: (281) 654-1936
Name:
Signature:
Title:
Date:
Comments: Exxon Mobil has submitted a separate, signed copy of UIC Form 5

NEW OPERATOR

Company: Resolute Natural Resources Company
Address: 1675 Broadway, Suite 1950
city Denver state CO zip 80202
Phone: (303) 534-4600
Name: Dwight E Mallory
Signature:
Title: Regulatory Coordinator
Date: 4/20/2006
Comments: A list of affected UIC wells is attached.
New bond numbers for these wells are:
BIA Bond # PA002769 and US EPA Bond # B001252

(This space for State use only)

Transfer approved by:
Title: Field Operations Manager
Approval Date: 6/12/06

Comments:

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DIV. OF OIL, GAS & MINING

(5/2000)

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

5. LEASE DESIGNATION AND SERIAL NUMBER: See attached list
6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Navajo Tribe
7. UNIT or CA AGREEMENT NAME: Ratherford Unit
8. WELL NAME and NUMBER: See attached list
9. API NUMBER: Attached
10. FIELD AND POOL, OR WILDCAT: Greater Aneth

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ OTHER Unit Agreement

2. NAME OF OPERATOR: Resolute Natural Resources Company N2700

3. ADDRESS OF OPERATOR: 1675 Broadway, Suite 1950 CITY Denver STATE CO ZIP 80202 PHONE NUMBER: (303) 534-4600

4. LOCATION OF WELL
FOOTAGES AT SURFACE: See attached list COUNTY: San Juan
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: STATE: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
☐ NOTICE OF INTENT (Submit in Duplicate)	☐ ACIDIZE	☐ DEEPEN	☐ REPERFORATE CURRENT FORMATION
Approximate date work will start:	☐ ALTER CASING	☐ FRACTURE TREAT	☐ SIDETRACK TO REPAIR WELL
	☐ CASING REPAIR	☐ NEW CONSTRUCTION	☐ TEMPORARILY ABANDON
	☐ CHANGE TO PREVIOUS PLANS	☑ OPERATOR CHANGE	☐ TUBING REPAIR
	☐ CHANGE TUBING	☐ PLUG AND ABANDON	☐ VENT OR FLARE
☑ SUBSEQUENT REPORT (Submit Original Form Only)	☐ CHANGE WELL NAME	☐ PLUG BACK	☐ WATER DISPOSAL
Date of work completion:	☐ CHANGE WELL STATUS	☐ PRODUCTION (START/RESUME)	☐ WATER SHUT-OFF
	☐ COMMINGLE PRODUCING FORMATIONS	☐ RECLAMATION OF WELL SITE	☐ OTHER:
	☐ CONVERT WELL TYPE	☐ RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Effective June 1, 2006 Exxon Mobil Oil Corporation resigns as operator of the Ratherford Unit. Also effective June 1, 2006 Resolute Natural Resources Company is designated as successor operator of the Ratherford Unit.

A list of affected producing and water source wells is attached. A separate of affected injection wells is being submitted with UIC Form 5, Transfer of Authority to Inject.

As of the effective date, bond coverage for the affected wells will transfer to BIA Bond # PA002769.

NAME (PLEASE PRINT) Dwight E Mallory TITLE Regulatory Coordinator

SIGNATURE D.E. Mallory DATE 4/20/2006

(This space for State use only)

APPROVED 6/27/06
Earlene Russell
Division of Oil, Gas and Mining
Earlene Russell, Engineering Technician

RECEIVED
APR 24 2006
DIV. OF OIL, GAS & MINING

(5/2000) (See Instructions on Reverse Side)

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

5. LEASE DESIGNATION AND SERIAL NUMBER:

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Ship Rock

7. UNIT or CA AGREEMENT NAME: UTU68931A

1. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ OTHER Injection

8. WELL NAME and NUMBER: Ratherford

2. NAME OF OPERATOR: ExxonMobil Oil Corporation N1855

9. API NUMBER: attached

3. ADDRESS OF OPERATOR: P.O. Box 4358 CITY Houston STATE TX ZIP 77210-4358

PHONE NUMBER: (281) 654-1936

10. FIELD AND POOL, OR WILDCAT: Aneth

4. LOCATION OF WELL

FOOTAGES AT SURFACE:

COUNTY: San Juan

QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:

STATE: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
☑ NOTICE OF INTENT (Submit in Duplicate)	☐ ACIDIZE	☐ DEEPEN	☐ REPERFORATE CURRENT FORMATION
Approximate date work will start: 6/1/2006	☐ ALTER CASING	☐ FRACTURE TREAT	☐ SIDETRACK TO REPAIR WELL
	☐ CASING REPAIR	☐ NEW CONSTRUCTION	☐ TEMPORARILY ABANDON
	☐ CHANGE TO PREVIOUS PLANS	☑ OPERATOR CHANGE	☐ TUBING REPAIR
	☐ CHANGE TUBING	☐ PLUG AND ABANDON	☐ VENT OR FLARE
☐ SUBSEQUENT REPORT (Submit Original Form Only)	☐ CHANGE WELL NAME	☐ PLUG BACK	☐ WATER DISPOSAL
Date of work completion:	☐ CHANGE WELL STATUS	☐ PRODUCTION (START/RESUME)	☐ WATER SHUT-OFF
	☐ COMMINGLE PRODUCING FORMATIONS	☐ RECLAMATION OF WELL SITE	☐ OTHER:
	☐ CONVERT WELL TYPE	☐ RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

ExxonMobil Oil Corporation is transferring operatorship of Greater Aneth field, Ratherford lease to Resolute Natural Resources Company. All change of operator notices should be made effective as of 7:00 AM MST on June 1, 2006.

Attached please find a listing of injection wells included in the transfer.

NAME (PLEASE PRINT) Laurie Kilbride TITLE Permitting Supervisor

SIGNATURE Laurie S. Kilbride DATE 4/19/2006

(This space for State use only) APPROVED 6/27/06

Earlene Russell

Division of Oil, Gas and Mining

Earlene Russell, Engineering Technician

(See Instructions on Reverse Side)

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APR 21 2006

DIV. OF OIL, GAS & MINING

(5/2000)

GREATER ANETH FIELD UIC WELL LIST
Ratherford lease, San Juan County, Utah

Reg Lease Name	Well ID	API Num	Status	Reg Lease #	Surface Location						
					Qtr 1	Qtr 2	Sec	TN	RNG	NS Foot	EW Foot
RATHERFORD UNIT	1W24	430371583900S1	Shut-in	14-20-603-246A	NE	SE	1	41S	23E	0651FSL	3300FEL
RATHERFORD UNIT	2W44	430371638600S1	Active	14-20-603-246A	SE	SE	2	41S	23E	0810FSL	0510FEL
RATHERFORD UNIT	11W42	430371584100S1	Active	14-20-603-246A	SE	NE	11	41S	23E	3290FSL	4617FWL
RATHERFORD UNIT	11W44	430371584200S1	Shut-in	14-20-603-246A	SE	SE	11	41S	23E	0660FSL	0558FEL
RATHERFORD UNIT	12W11	430371584300S1	Active	14-20-603-246A	NW	NW	12	41S	23E	0678FNL	4620FEL
RATHERFORD UNIT	12W13	430371640400S1	Active	14-20-603-246A	NW	SW	12	41S	23E	1980FSL	4620FEL
RATHERFORD UNIT	12W22	430371584501S1	Active	14-20-603-246A	SE	NW	12	41S	23E	1920FNL	2080FWL
RATHERFORD UNIT	12W24	430373115101S1	Active	14-20-603-246A	SE	SW	12	41S	23E	0775FSL	1980FWL
RATHERFORD UNIT	12W31	430371584700S1	Active	14-20-603-246A	NW	NE	12	41S	23E	0661FNL	1981FEL
RATHERFORD UNIT	12W33	430371584800S1	Active	14-20-603-246A	NW	SE	12	41S	23E	1958FSL	3300FEL
RATHERFORD UNIT	12W42	430371585000S1	Active	14-20-603-246A	SE	NE	12	41S	23E	3275FSL	0662FEL
RATHERFORD UNIT	12W44A	430373154300S1	Shut-in	14-20-603-246A	SE	SE	12	41S	23E	0772FSL	0807FEL
RATHERFORD UNIT	13W11	430373115201S1	Active	14-20-603-247A	NW	NW	13	41S	23E	0500FNL	0660FWL
RATHERFORD UNIT	13W13	430371585100S1	Active	14-20-603-247A	NW	SW	13	41S	23E	1980FSL	4620FEL
RATHERFORD UNIT	13W22	430371585200S1	Active	14-20-603-247A	SE	NW	13	41S	23E	1988FNL	3300FEL
RATHERFORD UNIT	13W24	430371585300S1	Active	14-20-603-247A	SE	SW	13	41S	23E	0660FSL	3300FEL
RATHERFORD UNIT	13W33	430371585501S1	Active	14-20-603-247A	NW	SE	13	41S	23E	1970FSL	1979FEL
RATHERFORD UNIT	13W42	430371585700S1	Shut-in	14-20-603-247A	SE	NE	13	41S	23E	2139FNL	0585FEL
RATHERFORD UNIT	13W44	430371640700S1	Active	14-20-603-247A	SE	SE	13	41S	23E	0653FSL	0659FEL
RATHERFORD UNIT	14-31	430373171700S1	Active	14-20-603-247A	NW	NE	14	41S	23E	0754FNL	1604FEL
RATHERFORD UNIT	14W42	430371586001S1	Active	14-20-603-247A	SE	NE	14	41S	23E	1976FNL	653FEL
RATHERFORD UNIT	24W31	430371586200S1	Shut-in	14-20-603-247A	NW	NE	24	41S	24E	0560FNL	1830FEL
RATHERFORD UNIT	24W42	430371586300S1	Shut-in	14-20-603-247A	SE	NE	24	41S	24E	1980FNL	0660FEL
RATHERFORD UNIT	17W12	430371572601S1	Active	14-20-603-353	SW	NW	17	41S	24E	1980FNL	510FWL
RATHERFORD UNIT	17W14	430371572700S1	Active	14-20-603-353	SW	SW	17	41S	24E	0610FSL	0510FWL
RATHERFORD UNIT	17W21	430371641601S1	Active	14-20-603-353	NE	NW	17	41S	24E	0510FNL	1830FWL
RATHERFORD UNIT	17W23	430371572801S1	Active	14-20-603-353	NE	SW	17	41S	24E	1880FSL	1980FWL
RATHERFORD UNIT	17W32	430371572900S1	TA'd	14-20-603-353	SW	NE	17	41S	24E	1830FNL	2030FEL
RATHERFORD UNIT	17W34	430371573000S1	Active	14-20-603-353	SW	SE	17	41S	24E	0560FSL	1880FEL
RATHERFORD UNIT	17W41	430371573100S1	Shut-in	14-20-603-353	NE	NE	17	41S	24E	0610FNL	0510FEL
RATHERFORD UNIT	17W43	430371641701S1	Active	14-20-603-353	NE	SE	17	41S	24E	1980FSL	0660FEL
RATHERFORD UNIT	18-43B	430373171801S1	Active	14-20-603-353	NE	SE	18	41S	24E	2023FSL	0651FEL
RATHERFORD UNIT	18W12	430373115301S1	Active	14-20-603-353	SW	NW	18	41S	24E	1980FNL	560FWL
RATHERFORD UNIT	18W14	430371573501S1	Active	14-20-603-353	SW	SW	18	41S	24E	0810FSL	0600FWL
RATHERFORD UNIT	18W21	430371641801S1	Active	14-20-603-353	NE	NW	18	41S	24E	660FNL	1882FWL
RATHERFORD UNIT	18W23	430373024400S1	Shut-in	14-20-603-353	NE	SW	18	41S	24E	2385FSL	2040FWL
RATHERFORD UNIT	18W32	430371573601S1	Active	14-20-603-353	SW	NE	18	41S	24E	2140FNL	1830FEL
RATHERFORD UNIT	18W34	430371573701S1	Active	14-20-603-353	SW	SE	18	41S	24E	780FSL	1860FEL
RATHERFORD UNIT	18W41	430371573800S1	TA'd	14-20-603-353	NE	NE	18	41S	24E	0660FNL	0660FEL
RATHERFORD UNIT	19-12	430371573901S1	Active	14-20-603-353	SW	NW	19	41S	24E	1980FNL	0600FWL
RATHERFORD UNIT	19-32	430371574301S1	Active	14-20-603-353	SW	NE	19	41S	24E	2717FNL	2802FEL
RATHERFORD UNIT	19-34	430371574401S1	Active	14-20-603-353	SW	SE	19	41S	24E	0660FSL	1980FEL
RATHERFORD UNIT	19W21	430371574100S1	Shut-in	14-20-603-353	NE	NW	19	41S	24E	0660FNL	1860FWL
RATHERFORD UNIT	19W23	430371574200S1	Shut-in	14-20-603-353	NE	SW	19	41S	24E	2080FSL	1860FWL
RATHERFORD UNIT	19W43	430371642000S1	Shut-in	14-20-603-353	NE	SE	19	41S	24E	1980FSL	0760FEL
RATHERFORD UNIT	20-12	430371574601S1	Active	14-20-603-353	SW	NW	20	41S	24E	0709FNL	0748FEL
RATHERFORD UNIT	20-14	430371574701S1	Active	14-20-603-353	SW	SW	20	41S	24E	0660FSL	0660FWL
RATHERFORD UNIT	20-32	430371574901S1	Active	14-20-603-353	SW	NE	20	41S	24E	0037FNL	0035FWL
RATHERFORD UNIT	20-34	430371575001S1	Active	14-20-603-353	SW	SE	20	41S	24E	0774FNL	0617FWL
RATHERFORD UNIT	20-67	430373159000S1	Active	14-20-603-353	NE	SW	20	41S	24E	2629FSL	1412FWL
RATHERFORD UNIT	20W21	430371642300S1	Active	14-20-603-353	NE	NW	20	41S	24E	0660FNL	1880FWL
RATHERFORD UNIT	20W23	430371574800S1	Active	14-20-603-353	NW	SW	20	41S	24E	2080FSL	2120FWL
RATHERFORD UNIT	20W41	430371575100S1	Active	14-20-603-353	NE	NE	20	41S	24E	0660FNL	0660FEL
RATHERFORD UNIT	20W43	430371642400S1	TA'd	14-20-603-353	NE	SE	20	41S	24E	2070FSL	0810FEL
RATHERFORD UNIT	16W12	430371572000S1	Active	14-20-603-355	SW	NW	16	41S	24E	1880FNL	0660FWL

GREATER ANETH FIELD UIC WELL LIST
Ratherford lease, San Juan County, Utah

Reg Lease Name	Well ID	API Num	Status	Reg Lease #	Surface Location						
					Qtr 1	Qtr 2	Sec	TN	RNG	NS Foot	EW Foot
RATHERFORD UNIT	16W14	430371572100S1	Shut-in	14-20-603-355	SW	SW	16	41S	24E	0660FSL	0660FWL
RATHERFORD UNIT	16W21	430371641400S1	Active	14-20-603-355	NE	NW	16	41S	24E	0660FNL	1880FWL
RATHERFORD UNIT	16W23	430371572201S1	Active	14-20-603-355	NE	SW	16	41S	24E	1980FSL	1980FWL
RATHERFORD UNIT	16W43	430371641501S1	Active	14-20-603-355	NE	SE	16	41S	24E	2140FSL	0820FEL
RATHERFORD UNIT	21-14	430371575301S1	Active	14-20-603-355	SW	SW	21	41S	24E	0660FSL	0460FWL
RATHERFORD UNIT	21-67	430373175301S1	Active	14-20-603-355	NE	SW	21	41S	24E	2560FSL	1325FWL
RATHERFORD UNIT	21W21	430371642501S1	Active	14-20-603-355	NE	NW	21	41S	24E	0660FNL	2030FWL
RATHERFORD UNIT	**6W14**	430371598400S1	Active	14-20-603-368	NE	SE	6	41S	24E	0660FSL	0660FWL
RATHERFORD UNIT	7W12	430371598500S1	Active	14-20-603-368	NE	SE	7	41S	24E	2140FNL	0585FWL
RATHERFORD UNIT	7W14	430371598600S1	Active	14-20-603-368	NE	SE	7	41S	24E	1065FSL	0660FWL
RATHERFORD UNIT	7W21	430371639400S1	Active	14-20-603-368	NE	NW	7	41S	24E	0710FNL	1820FWL
RATHERFORD UNIT	7W34	430371598900S1	Active	14-20-603-368	SW	SE	7	41S	24E	0710FSL	2003FEL
RATHERFORD UNIT	7W43	430371639500S1	Active	14-20-603-368	NE	SE	7	41S	24E	2110FSL	0660FEL
RATHERFORD UNIT	**8W14**	430371599200S1	Active	14-20-603-368	SW	NE	8	41S	24E	0745FSL	0575FWL
RATHERFORD UNIT	10W43	430371640300S1	TA'd	14-20-603-4037	NE	SE	10	41S	24E	1980FSL	0550FEL
RATHERFORD UNIT	29-12	430371533701S1	Active	14-20-603-407	SW	**NW**	29	41S	24E	2870FNL	1422FWL
RATHERFORD UNIT	29-32	430371533901S1	Active	14-20-603-407	SW	NE	29	41S	24E	0694FNL	0685FWL
RATHERFORD UNIT	29W21	430371643200S1	Active	14-20-603-407	NE	NW	29	41S	24E	0667FNL	2122FWL
RATHERFORD UNIT	29W41	430371643300S1	Active	14-20-603-407	NE	NE	29	41S	24E	0557FNL	0591FEL
RATHERFORD UNIT	29W43	430371643400S1	Shut-in	14-20-603-407	NE	SE	29	41S	24E	1980FSL	0660FEL
RATHERFORD UNIT	30W41	430371534300S1	Shut-in	14-20-603-407	NE	NE	30	41S	24E	0660FNL	0660FEL
RATHERFORD UNIT	28-12	430371533601S1	Active	14-20-603-409	SW	SE	28	41S	24E	2121FNL	0623FWL
RATHERFORD UNIT	28W21	430371643100S1	Shut-in	14-20-603-409	NE	NW	28	41S	24E	0660FNL	2022FWL
RATHERFORD UNIT	9W23	430371639800S1	Active	14-20-603-5046	NW	SE	9	41S	24E	1980FSL	1980FWL

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING

FORM 9

5.LEASE DESIGNATION AND SERIAL NUMBER:
14-20-603-355

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:
NAVAJO

7.UNIT or CA AGREEMENT NAME:
RATHERFORD

1. TYPE OF WELL
Water Injection Well

8. WELL NAME and NUMBER:
NAVAJO A-9 (RATHERFORD 16W23)

2. NAME OF OPERATOR:
RESOLUTE NATURAL RESOURCES

9. API NUMBER:
43037157220000

3. ADDRESS OF OPERATOR:
1700 Lincoln Street, Suite 2800 , Denver, CO, 80203 4535

PHONE NUMBER:
303 534-4600 Ext

9. FIELD and POOL or WILDCAT:
GREATER ANETH

4. LOCATION OF WELL
FOOTAGES AT SURFACE:
1980 FSL 1980 FWL
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:
Qtr/Qtr: NESW Section: 16 Township: 41.0S Range: 24.0E Meridian: S

COUNTY:
SAN JUAN

STATE:
UTAH

11.
CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
✓ NOTICE OF INTENT Approximate date work will start: 10/10/2014	✓ ACIDIZE	☐ ALTER CASING	☐ CASING REPAIR
	☐ CHANGE TO PREVIOUS PLANS	☐ CHANGE TUBING	☐ CHANGE WELL NAME
	☐ CHANGE WELL STATUS	☐ COMMINGLE PRODUCING FORMATIONS	☐ CONVERT WELL TYPE
☐ SUBSEQUENT REPORT Date of Work Completion:	☐ DEEPEN	☐ FRACTURE TREAT	☐ NEW CONSTRUCTION
	☐ OPERATOR CHANGE	☐ PLUG AND ABANDON	☐ PLUG BACK
	☐ PRODUCTION START OR RESUME	☐ RECLAMATION OF WELL SITE	☐ RECOMPLETE DIFFERENT FORMATION
☐ SPUD REPORT Date of Spud:	☐ REPERFORATE CURRENT FORMATION	☐ SIDETRACK TO REPAIR WELL	☐ TEMPORARY ABANDON
	☐ TUBING REPAIR	☐ VENT OR FLARE	☐ WATER DISPOSAL
☐ DRILLING REPORT Report Date:	☐ WATER SHUTOFF	☐ SI TA STATUS EXTENSION	☐ APD EXTENSION
	☐ WILDCAT WELL DETERMINATION	☐ OTHER	OTHER:

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

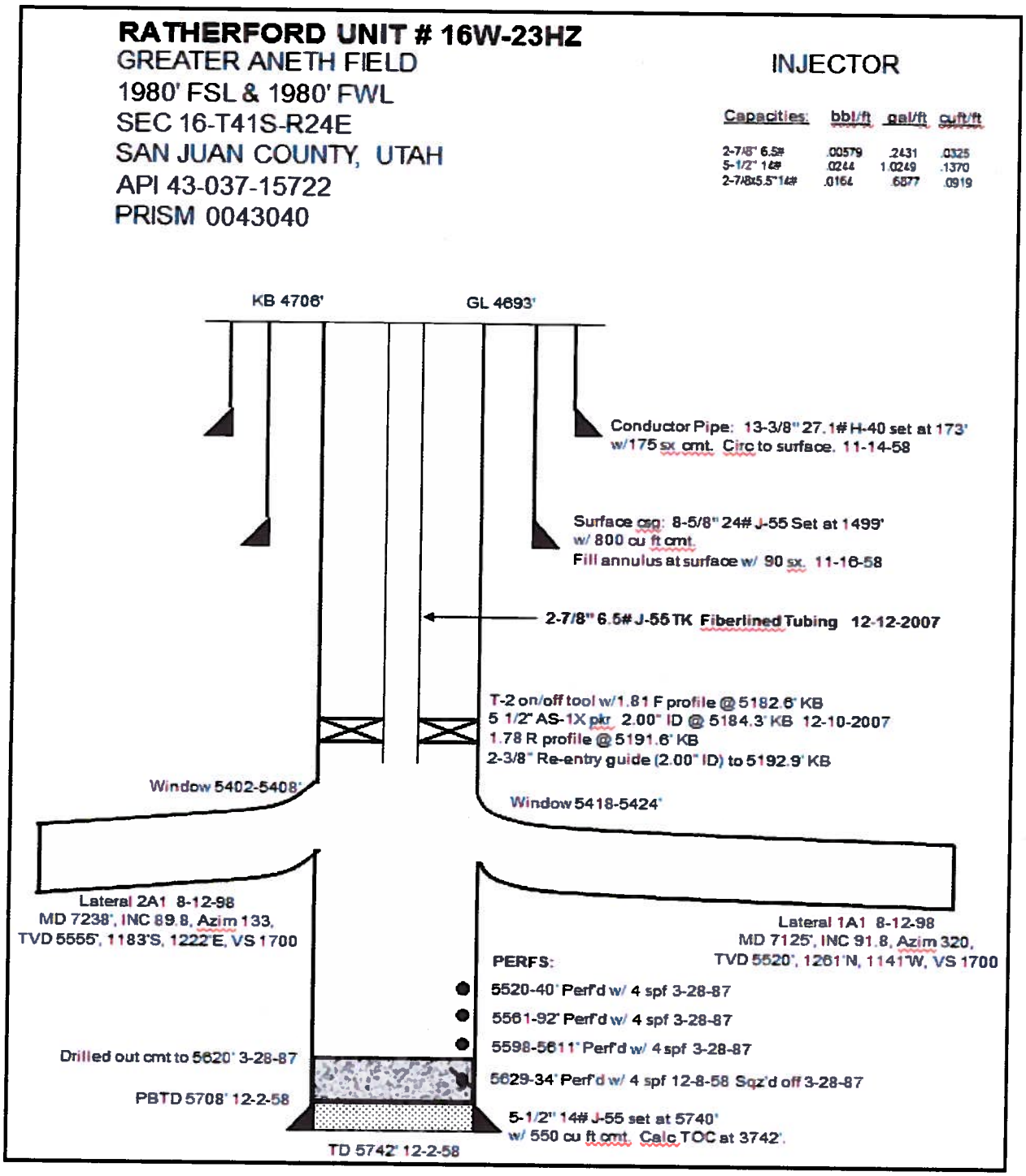
Resolute Natural Resources respectfully submits this sundry as notice of acidizing the above well. Attached are the procedures and schematic

Accepted by the
Utah Division of
Oil, Gas and Mining
FOR RECORD ONLY
October 15, 2014

NAME (PLEASE PRINT)	PHONE NUMBER	TITLE
Erin Joseph	303 573-4886	Sr. Regulatory Analyst

SIGNATURE	DATE
N/A	10/7/2014

RECEIVED: Oct. 07, 2014


RATHERFORD UNIT # 16W-23HZ
GREATER ANETH FIELD
1980' FSL & 1980' FWL
SEC 16-T41S-R24E
SAN JUAN COUNTY, UTAH
API 43-037-15722
PRISM 0043040
INJECTOR
Capacities: bbl/ft gal/ft cu/ft/ft
2-7/8" 6.5# .00579 .2431 .0325
5-1/2" 14# .0244 1.0249 .1370
2-7/8x5.5"14# .0164 .6877 .0919
KB 4706'
GL 4693'
Conductor Pipe: 13-3/8" 27.1# H-40 set at 173' w/175 sx cmt. Circ to surface. 11-14-58
Surface csg: 8-5/8" 24# J-55 Set at 1499' w/ 800 cu ft cmt.
Fill annulus at surface w/ 90 sx. 11-16-58
2-7/8" 6.5# J-55 TK Fiberlined Tubing 12-12-2007
T-2 on/off tool w/1.81 F profile @ 5182.6' KB
5 1/2" AS-1X pkr. 2.00" ID @ 5184.3' KB 12-10-2007
1.78 R profile @ 5191.6' KB
2-3/8" Re-entry guide (2.00" ID) to 5192.9' KB
Window 5402-5408'
Window 5418-5424'
Lateral 2A1 8-12-98
MD 7238', INC 89.8, Azim 133,
TVD 5555', 1183'S, 1222'E, VS 1700
Lateral 1A1 8-12-98
MD 7125', INC 91.8, Azim 320,
TVD 5520', 1261'N, 1141'W, VS 1700
PERFS:
5520-40' Perf'd w/ 4 spf 3-28-87
5561-92' Perf'd w/ 4 spf 3-28-87
5598-5611' Perf'd w/ 4 spf 3-28-87
5629-34' Perf'd w/ 4 spf 12-8-58 Sqz'd off 3-28-87
Drilled out cmt to 5620' 3-28-87
PBTD 5708' 12-2-58
5-1/2" 14# J-55 set at 5740'
w/ 550 cu ft cmt. Calc TOC at 3742'.
TD 5742' 12-2-58

RESOLUTE
NATURAL RESOURCES

RU Injection Wells Bullhead Acid Treatments

Well Summary Table

	RU Well No.	Well Type	Current BWIPD @ TP	Current Pattern BOPD	Tbg - Csg Sizes	Tubing Run Date	Last Acid	Bbls Wtr Displ After Acid	Comment
1	12W-33	Vertical	909 @ 2910	160	2-3/8 - 4	Dec 2013	Nov 2013	30	
2	29W-32	Sgl Lateral	717 @ 3000	137	2-3/8 - 4	Jul 2013	Jun 2013	30	
3	12W-22	Tri Lateral	1045 @ 2950	129	2-3/8 - 5-1/2	Feb 1997	Feb 1997	40	
4	14W-42	Sgl Lateral	1598 @ 2950	123	2-3/8 - 4	Nov 2011	Mar 2013	30	
5	17W-14	Vertical	2402 @ 2710	104	2-7/8 - 5-1/2	Jun 2012	Oct 2006	45	
6	13W-11	Quad Lateral	892 @ 2850	101	2-7/8 - 7	Jun 2007	< 2000	45	
7	21W-14	Dual Lateral	1006 @ 2950	44	2-7/8 - 5-1/2	Jun 2003	Oct 2006	45	Tubing cmtd in csg Jul 2003.
8	19W-12	Tri Lateral	2295 @ 2610	44	2-3/8 - 5-1/2	Sept 1997	Sept 1997	45	
9	9W-23	Vertical	1461 @ 2800	32	2-3/8 - 5-1/2	Jul 1998	Aug 2007	35	
10	16W-23	Dual Lateral	1003 @ 3000	61	2-7/8 - 5-1/2	Dec 2007	Oct 2006	45	

Procedure

Horsley Witten: Not Applicable

1. Check crown valve & wing valve for integrity to ensure pump truck can rig up to well. (All wells checked by 10-2-14; New wing valves being installed at 12W-22, 14W-42 & 19W-12)
2. MIRU frac tank, manifold & hard line for flowback. RU ABC shower trailer.
3. Backflow the well for ~400 bbls or until significant gas appears, then shut in.
4. RU pumping equipment to wellhead & PT lines. Record TP, CP, Bradenhead P (BHP).
5. Pump 400 gal xylene, 2500 gal inhibited 15% HCl, produced water displacement (see table above). **Pump at maximum rate possible, staying under 3000 psi TP.** Monitor CP and BHP while pumping.
6. Rig down pumping equipment.
7. Notify Pierce Benally (435) 619-7227 that the well is ready to return to injection.
8. Open the well to injection; Record the initial injection rate and tubing pressure.